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February 1994

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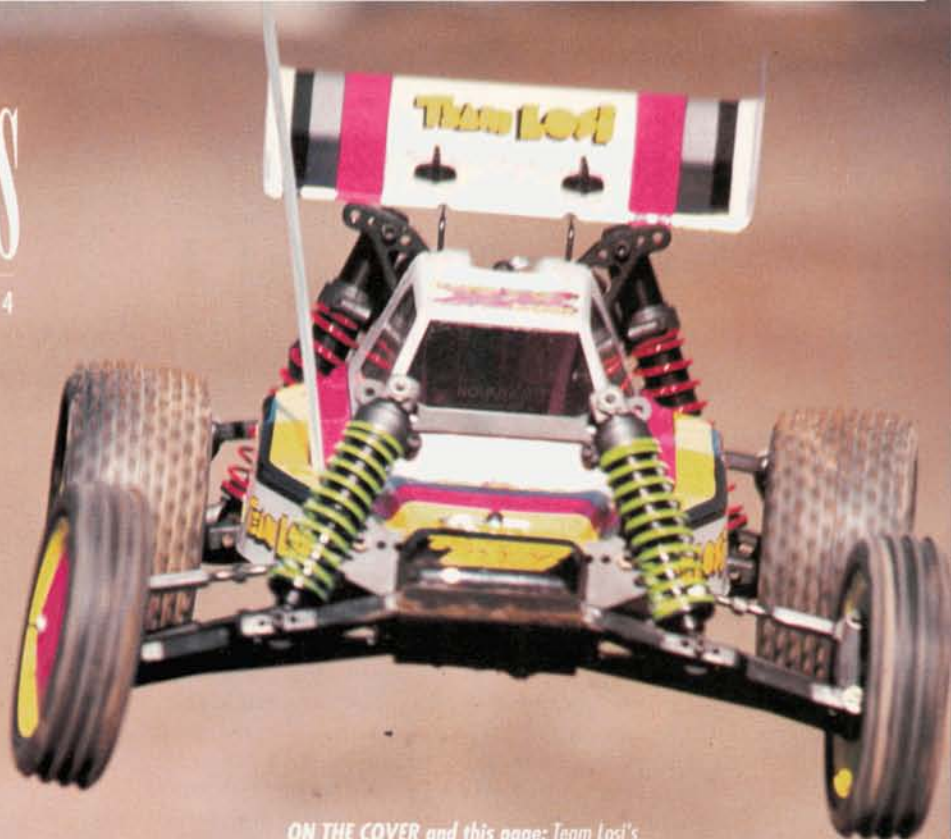
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EDITORIAL

A HOBBY WITH PLENTY OF ROOM

ANY ACTIVITY—no matter how much fun it is—can become stale. To maintain interest in any hobby—such as racing radio-control cars—you need diversions. How many times can you drive the same car around the same track before you become bored? Answers will vary, but it's bound to happen to each of us sooner or later. In this area, backyard bashers hold a distinct advantage over serious racers because they can easily switch locations if they get tired of running over the same obstacles. There's always another rock to cross, but there are only so many tracks in the world!



This issue features Team Losi's eagerly awaited Double-X. I got the chance to test-drive this new off-road rocket; read the Track Report to find out how it fared.

Along these lines, I'm sure you've noticed the increased popularity of gas-powered vehicles. Should diehard electric racers become concerned that these interests are encroaching on their segment of the hobby? Absolutely not. I believe that people who have been in the hobby for several years and have switched to gas did so for a change of scenery, not because they were fed up with so-called "battery wars" or political disputes among sanctioning bodies. I own and race gas cars and electric cars. In fact, I think that I enjoy running electrics more because of gas, and vice versa; each has its highs and lows. Electric cars are clean and quiet, so you can run them just about anywhere. Gas cars are noisy and somewhat messy, but they offer longer run times, and they sound really cool.

So, gas racers and electric racers needn't become opposing factions; the R/C car hobby is vast, and there's room for both interests. As for me, I'll be running my gas car on Saturday and then charging my batteries for Sunday's electric activity.

Turn a friend on to R/C today!

Frank Masi

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WRITE TO US! We welcome your comments and suggestions. Letters should be addressed to "Letters," *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

STICKER CRAZY

I love your magazine; it's the only one I read. I just got a new RC10CE with the Stealth tranny, and I'd like to know if my car can take the same hop-ups as the Team Car. Also, where can I get some of those cool *R/C Car Action* decals? Thanks.

DAVID IRWIN

Schomberg, Ontario, Canada

Yes, David, your car will accept the same hop-ups as the Team Car will. As for the "R/C Car Action" stickers, they cost \$2 per sheet, and you can get them through the Air Age Publishing mail-order dept., P.O. Box 280, 251 Danbury Rd., Wilton, CT 06897. The \$2 includes S&H, and you'll receive them by first-class mail. You can also call our mail-order hotline at (800) 243-6685 and charge them on your credit card.

JH

SLOT MACHINE?

Recently, Frank Masi's article on Joel Johnson's winning EV10 caught my eye as I was looking through a back issue of *R/C Car Action* (March '93). While looking at the full-page picture of the car on page 118, I noticed that Joel had apparently glued or "stuck" two quarters on the car's battery brace. What is the purpose of this?

ROB LINDEMANN

Plainville, CT

It's all in the rules, Rob. Joel added the two quarters to his car to make the IFMAR legal racing weight. After he added the coins, Joel's car weighed 42 ounces—the legal weight. You'll see this on a lot of the top racers' cars.

JH

CAMP LEJEUNE

Your magazine is number one compared with all those other wiener magazines. I

have some questions:

1. How is the new 411K2 different from the old 411K?
2. Do pros, such as Cliff Lett and Joel Johnson, have different jobs other than working for R/C car companies?
3. How much wood would a woodchuck chuck if a woodchuck could chuck wood?
4. Have any R/C companies thought about having a camp where the pros teach novice drivers all they know? I read about the Ranch Pro/Am event, where novice drivers hung out with pros, but I was thinking of something that lasts about a week. Thanks, and keep up the great mag.

TYLER PENCE

Elizabethtown, KY

Tyler, I'm not too sure about your first question. Tekin doesn't make a 411K or a 411K2. If you're referring to the 410K unit, yes, they do make one of those—but not a 410K2. I'm not sure if you're talking about the 411G and G2 or the 411P and P2. Well, both have been upgraded with dual-brake Mosfets for stronger brakes, a 5A BEC for high-power servo use, and both feature external solder posts. Hope this answers that one for you.

Most top pros work in the industry somehow. Cliff Lett, Brian Kinwald and Mark Pavidis all work at Associated Electrics, and you'll find Jack Johnson and Jon Anderson over at Team Losi's factory. Some don't work at the factories, though; during his time off, Joel Johnson works at Chippendale's as an exotic dancer.

Sorry, I don't know any woodchucks well enough to ask them that question.

As for the camp, I think it's a great idea. They could have daily seminars, hold races, etc. You could hang out with a few top racers and learn from the best. Jack Johnson could teach you how to set up your new Double-X, Rick Hohwart could teach motor-tuning techniques, you could learn driving tips from the world champ himself—Brian Kinwald—and Joel Johnson could teach you how to prance around in a G-thong. By the way, I hope everyone knows that I'm only goofing on

the "Magic man." When he isn't racing, Joel is busy developing products for his line of Magic Motorsports accessories. Anyway, I really think the camp is a good idea. Are any manufacturers listening?

JH

LOOSE STEERING LOSI

Hey guys, great magazine! I'm a recent convert to the killer R/C craze. I just bought a Team Losi Pro SE, and it's the greatest thing since PB&J. Is a 23-tooth pinion too low/high for a Trinity Slot Machine? Right now, I'm looking for longer run times so that I can learn about the car and how it handles. Does a company make turnbuckles that don't pop off as easily as the stock ones? What size of soldering iron would you recommend for use on the motors? How can I get more steering from my car? It seems to me that I don't get as much as I should.

CHUCK NORRIS (no relation)
Glenview, IL

Assuming that you run the stock, 86-tooth spur gear that comes with the kit and that you run on short tracks, a 23-tooth pinion gear is a good place to start, but you can go up to a 26-tooth pinion.


I don't know why your turnbuckles pop off so easily; Team Losi's turnbuckles are pretty resilient. Check to make sure there isn't any dirt between the ball end and the ball cup; that could be the culprit.

For motor work, get at least a 40W soldering iron.

For more steering, here are a few options you could try: check out Jammin' Jay's Pro SE Steering Enhancement kit; raise the rear ride height of the car slightly; use stiffer shock springs in the rear; lower the front ride height; and make sure that you're using a steering servo with at least 30oz.-in. of torque. If you have the money, try the new Double-X tranny retrofit for the Pro SE. It not only enhances the steering of the car, but it also improves overall handling and acceleration.

JH

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The newest product from RP Powerzone is the **"Purple Haze" Stock Racing Motor** (**part no. RP-242, \$32.00**). The Purple Haze motor is set up with the new Silver "R" Compound Laydown Brushes (**part no. RP-9009, \$4.50 pr.**). They feature F.T.C. Stage 3 break-in process, stronger magnets, shorter armature stacks and cut bushings for lower friction.

Good Racin' & Good Luck!
Mike Dunn

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WHAT'S NEW

PARMA Indy Body

This highly detailed, aerodynamic Indy body is a direct fit for 1/10-scale Tamiya and Kyosho F1 Indy kits. It's designed to work with the original front and rear wings that are supplied with the factory kits.

Part no.—10382;
price—\$19.

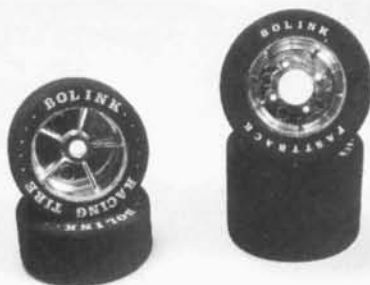
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Bolink R/C Cars, 420 Hosea Rd., Lawrenceville, GA 30245; (404) 963-0252.

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Price—\$5.

Custom Electronics, RR #1,
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Part nos.—3304 (without radio), 3310 (with radio); **prices**—\$485, \$585.

Traxxas Corp., 12150 Shiloh Rd., #120, Dallas, TX 75228; (214) 613-3300.

KO PROPO EG Starter

With this new starter, you just press a button on a hand-held unit, and your engine starts instantly! It's smaller, lighter and more

portable than an electric starter, and it's faster than a recoil starting system. Components include a small gearbox and an electric motor that are bolted onto the engine and a remote starting unit that's powered by a standard 6-cell Ni-Cd. Just plug the remote starter into the supplied connector harness, and press the start button; the unit immediately sends power to the glow plug and the engine-mounted motor and gearbox for a super-fast start! Starters are available for the O.S. .10 FP and the .12 CZ-R.

Price—\$119.99.

KO Propo, 25-10 Sendagi, 3-Chome, Bunkyo-Ku, Tokyo, Japan.



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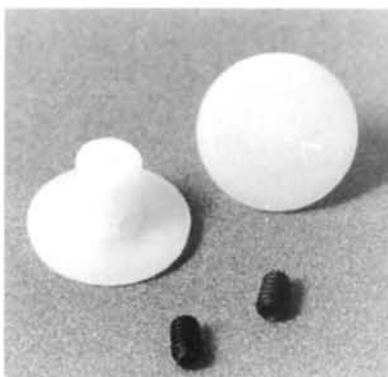
BRP Wing-Mounting Buttons

These wing-mounting buttons are made of light, strong nylon that can be dyed to match your car's color scheme. They make wing-to-wing wire mounting easier; they also allow you to make quick wing-position adjustments.

Part nos.—5248 (with screws), 5247 (with bent wire).

Prices—\$2.95/pair, \$3.75/pair.

BRP Inc., 1575 Lowell St., Elyria, OH 44035; (216) 284-0270.



DAHMS Nitro Shark 1/8-Scale Body

Made of .040-inch-thick Lexan, Dahm's hot new aerodynamic Nitro Shark body is designed to fit tightly to improve handling and increase top speeds. It will fit the Inferno, Pirate RS

and most other 1/8-scale, gas-powered dune buggies. (It's shown here on the Pirate RS.) Nitro Shark's winning features include gill-like intake vents, wraparound windshield, realistic detailing, stabilization fins, a racing wing, front shock tower reinforcement fins, an escape hatch and molded-in trim lines.

Part no.—D045; **price**—\$22.98.

Dahm's Racing Bodies, P.O. Box 360, Cotati, CA 94931; (707) 792-1316.



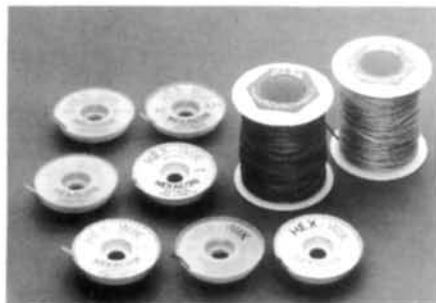
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INSIDE SCOOP



by CHRIS CHIANELLI

IN SEARCH OF FUN AND GLORY, 'CAUSE LIFE'S TOO SHORT TO BE A SHEEP!



We've all heard of the Marshall Tucker Band, and here are a few of those much-loved rockers' toys. Tim Lawter and Jerry Eubanks both run Bolink

LTOs with Futaba radios, Novak ESCs, Trinity Ruby Modified motors and full ball bearings. The band tours 200 days a year, so what do the boys do with the toys when they can't find a local track? "We usually terrorize the parking lots of the hotels we stay in; it's great

Mean Machines in High Grass Forever

fun chasing maids." I guess that keeps them out of trouble.



The F1 phenomenon has swept Japan and Europe and now threatens the shores of America. The Tamiya F1 cars are prime candidates for parking lot racing, which is in its infancy here in the States. They're so closely matched in performance and look wonderfully all-American with Indycar bodies on them.



Anyway, the Tamiya-run, F1 Series races are R/C racing extravaganzas replete with banquets and awards. If we don't bring this fun, fairness and professionalism to the USA, it will be a real shame. Here, you see the top man—Tamiya Inc. president Mr. S. Tamiya himself—presiding over an awards ceremony. Talk about commitment!

SHACHO (PRESIDENT) DOES THE HONORS

Last October, at the PRO-CAR World Championships, Joel Johnson pocketed the

Magic's Money Machine

\$5,000 purse with this Trinity EV10ss

left-side-drive (LSD) car.

Designed specifically for high-speed/high-banked ovals, this new superspeedway car has a redesigned rear pod with a left-side motor drive. This LSD kit includes a Slot Machine II "reverse" stock motor with clockwise rotation. Need some cash? Get the Magic Man's ride.



ENYA gets Pull

Look out for this new pull-start offering from Enya—the CX CT RS engine. For info, contact MRC, 200

Carter Dr., Edison, NJ 08817; (908) 248-0400. More to come.



It's none other than Air Force colonel Edwin Frey, general manager of Parma Intl., tearing

up the lawn in the Parma-owned, Indy engine-powered '29 Ford. Wait a minute...the colonel and an Indy engine in the same hotrod?! Now, there's a treacherous trio, if I ever saw one! The '29 Ford will be offered by Parma in a 1/10-scale kit featuring a three-piece interior, chrome wheels, a G-10 chassis, mounted-and-trued foam tires and a hideaway antenna. (Colonel Edwin Frey dolls sold separately.)

Inset: Parma's officially licensed 1/10-scale Mark Martin R/C stock car kit. Its features include a T-Bird body with spoiler, complete set of scale decals, trued foam tires mounted on stock-car-style wheels, concealed body mounts and a whip antenna. For more information, contact Parma Intl. Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Here Come da Colonel



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Trinity Pinions...Ours are precision machined from 6061 T-6 aircraft aluminum and teflon impregnated for smooth meshing and minimum friction.



Brand "R"
...They have poor tooth finish and profile. They don't mesh well with the spur gear.

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If you're looking for an ultra-sano bag to protect your transmitter, then look no further, because Dirt Bagz has just the thing for you.



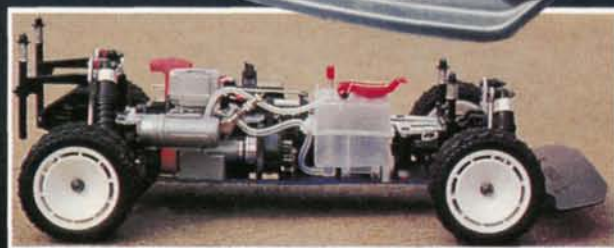
Made of vinyl-backed polyester, these new, sturdy Tranz Bagz have a durable YKK zipper and they're fully padded on the top, bottom and sides. Inside, there's a small enclosure that's secured by Velcro® brand-fastener; use it to hold extra crystals, a receiver, or the kitchen sink. One of the bag's best features is that it fits every radio that we car fanatics use, and you don't have to remove the antenna! For more information, contact Dirt Bagz, 200 1/2 Diamond Ave., Balboa Island, CA 92662; (714) 675-5810.

Bagz

KYOSHO

Mercedes AMG

I don't know much about this full ground-effects 4WD Mercedes AMG other than that it's based on a lowered version of the Inferno 10 chassis. We'll keep you posted.



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- Oil weight remains stable under increasing track heat, so suspension set-up won't change
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READERS' RIDES

"Readers' Rides" is our way of recognizing the unique, innovative—and sometimes bizarre!—vehicles that our readers have created. Send us a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, R/C Car Action, 251 Danbury Rd., Wilton, CT 06897. If the Ayatollah of Radio Controlla chooses your photo, you'll receive a 6-month subscription to Car Action, or an extension of your existing subscription. You'll also be eligible for the third annual "Reader's Ride of the Year Contest" in the fall of 1994. Write your address and phone number on your letter and on the back of each photo you send, in case we need to contact you.

BUZZIN' AROUND

Allergic racers beware: killer bees were recently spotted in Texas! And Greg Buchanan of Helotes, TX, has one. Here's his Associated RC10—all decked out in the swarmin' motif. The car is equipped with a Stealth transmission, a Reedy Mr. R modified motor, a Tekin speed controller and Airtronics radio gear. Hey, Greg, you'd better hope that no one takes any of that Raid Wasp & Hornet Killer to the track.



BRUISED BANANA

Longtime reader and military man Mike Basick modified his ultra-clean Bruiser truck with a Clodbuster body, a Parma Hemi motor and wiring kit, Kyosho USA tires and wheels with Pro-Line knock-offs, APM working cab lights and non-working air horns, ESP front and rear bumpers, a stainless-

steel sun visor, and re-arched leaf springs. Mike's father helped him out with the chroming of a few of the parts, such as the leaf-spring shackles, axle brackets and frame cross-



members. Hey, Mike, if you're still interested in selling your vehicle, send us your current home address, and we'll pass along any offers.

BIG DUMMY

Watch out for this guy when he hits the road. Dennis Wachs of West Bend, WI, has his Crash Dummy piloting his new MRC Thunder King. He built the truck with the intention of running it in parades



and exhibitions. Using a Novak 610RV, two stock 540 motors, two 8-cell 1700 SCRC battery packs, a 4-cell 1000mAh receiver pack, and full ball bearings, its run times can exceed 45 minutes. The Fourth of July paint scheme is the work of Russ Schacht of West Bend Hobbies.

ULTIMATE DINO RIDE

"Jurassic Park" is a hot flick, and this is one killer truck. Peter Spragg of Mount Holly, NJ, converted his Kyosho Ultima into a "Jurassic Park" truck replica using CRP Blackfoot shock towers, Trinity purple long shocks and IMEX slicks on IMEX Blackfoot wheels. Peter painted the Dahm's Explorer body himself, and a Trinity Monster Stock Jr. helps him get out of T-Rex's way.



VANTASTIC!

Paul Saulnier of Dieppe, New Brunswick, Canada, sent this photo of his sharp-looking Kyosho USA-1, which has quite a few hours invested in it. This is especially true of the body, which started out as a Tamiya Blackfoot F-150. The truck's bed was cut off, the nose was shortened, and with CA, balsa, Rigidflex and body fill, the van body was shaped and sanded. The grill has been extensively modified and has working lights. The list of mods goes on and on.... Well, Paul, it's a great-looking truck; let's just hope that it never tips over!



• • • • •



IT'S BIG—VERY BIG!

When was the last time you saw a Russian SS-25 Sickle with a Transporter Erector Launcher driving down the street? Last week? Yeah—me, too. Anyway, Normand Lajoie of Belleville, Ontario, Canada, says this homemade project took him roughly three years, and he still hasn't finished. The truck is based on three Tamiya Falcon front ends and four Falcon gearboxes. Four Kyosho 360 motors get the beast rolling, and about 50 ball bearings keep it running smoothly. The vehicle also has a custom-made aluminum chassis, two Novak 610RVs, 12 battery packs, RAM lights and sound units. What we want to know is: what does it launch?

• • • • •

BUGZILLA

Pay attention, class! This is a Colorado potato beetle! What's that? You say you're sure it isn't a real beetle? Well, I guess we never could fool you. This bugged-out RC10T belongs to Joseph Felix of Plainfield, IL, and his wife, Kathy, painted the body. Joseph's insect is equipped with a Tekin 411G ESC, a Trinity Green Machine motor, MIP CVDs, Pro-Line XTR Fuzzie rears, an Airtronics XL2P radio and a Dahm's Buggsy body.



• • • • •



DARE TO BE DIFFERENT

This Traxxas Hawk is the work of Aaron Crescenti of Glen Gardner, NJ. The truck has been modified with a Trinity Slot Machine motor, Pro-Line tires, a Futaba Magnum Sport radio, front and rear nerf bars and a DuraTrax battery. But the unique modification has to be the "bad to the bone" body, which Aaron made out of foam board (a type of Styrofoam) and a shoe box. Well, Aaron, it's definitely different looking.

TROUBLESHOOTING

by JOHN HUBER

Illustrations by Steve Collins

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at Radio Control Car Action, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to Troubleshooting, Radio Control Car Action, 251 Danbury Road, Wilton, CT 06897. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

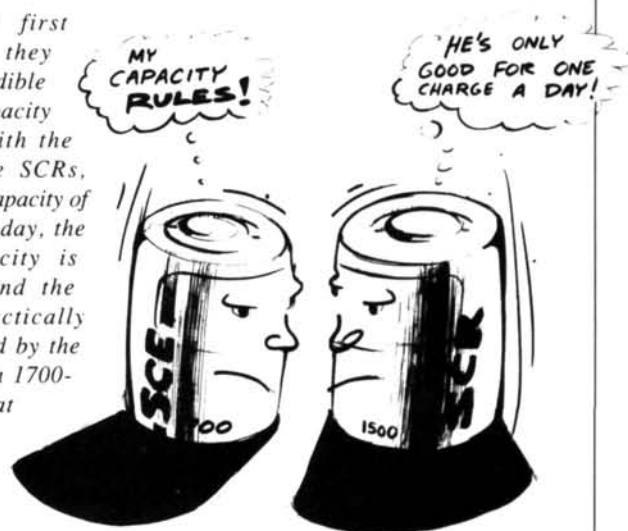
Eenie, Meenie, Minie...

What's the difference between SCR cells and SCE cells? Which is better?

JIM TRITTSCHLER
Novi, MI

Jim, many people don't know the difference between SCRs and SCEs. It's really quite simple. "SC" means Sub-C—the size of the cell. The "R" in SCR stands for rapid charge. These cells are built to withstand heavy charge rates of up to 9 amps. They have a higher voltage and are therefore desirable in stock racing. The "E" in SCE stands for extra—as in run time. When

SCEs were first introduced, they had an incredible 1700mAh capacity compared with the SCs and the SCRs, which had a capacity of 1200mAh. Today, the SCR's capacity is 1400mAh, and the SCE has practically been replaced by the new SCRC—a 1700-mAh pack that can take a fast charge.



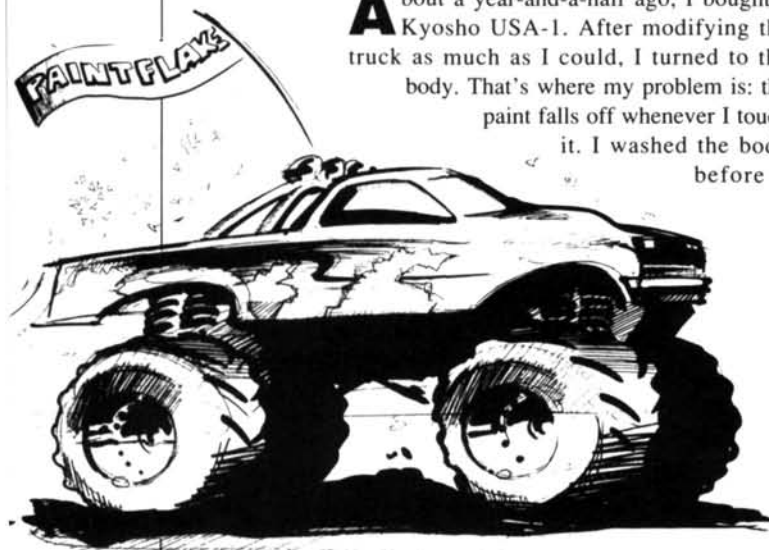
Paint Complaint

About a year-and-a-half ago, I bought a Kyosho USA-1. After modifying the truck as much as I could, I turned to the body. That's where my problem is: the paint falls off whenever I touch it. I washed the body before I

painted it, and I used a paint that's suitable for Lexan bodies. Is there anything else that I should have done or need to do to save my paint job? Please help!

JERRY FLINT
Long Beach, WA

Jerry, if the body was clean and you used an R/C paint such as Pactra, I don't know why the paint is falling off. Sometimes a light sanding will help the paint to stick; you can try that, but I can't think of anything else. I've seen paint flake off before, but not Pactra. There might have been a layer of mold-release agent on the body. It's used to prevent the Lexan from sticking to the mold, but it might be preventing the paint from sticking to the body.



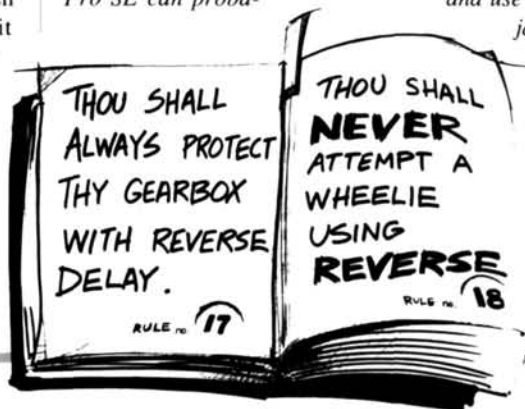
Reverse Psychology

I use a Magnum Sport FP-T2PB radio and a Futaba MC210 CB speed controller with my JRX Pro SE. Recently, I noticed that when I turn the trigger to reverse, it takes about 4 seconds for the car to go in reverse. What did I do wrong? Can I adjust it so that it won't do that, or does it just happen?

BEAU JENNINGS
Council Bluffs, IA

The delay you've noticed is normal; its purpose is to save your gearbox. Although the Pro SE can proba-

bly take the abuse, most entry-level cars can't. Most drivers concentrate on forward driving and use reverse only to get out of jams. If you want an ESC that can go from forward to reverse instantly, check out the Novak 610HRV or the Tekin 610R. They have adjustable reverse delays.



Smokin' Speed Controller

I have a Traxxas TRX-10 Bullet with a Novak 610 HRV ESC and a DuraTrax 13x2 49,000rpm motor. I installed a set of ball bearings and a ball diff. My problem: the speed controller overheats. I sent the controller back to Novak, and they said it tested well. They also said that the speed controller should be able to handle the motor. I've also run my Mega 18x2 motor, and it still overheats. I've used 16-, 18- and 22-tooth pinion gears and the three recommended capacitors on each motor, and I've placed the speed controller in the airflow by cutting out some of the body. It even overheats when I take the body off.

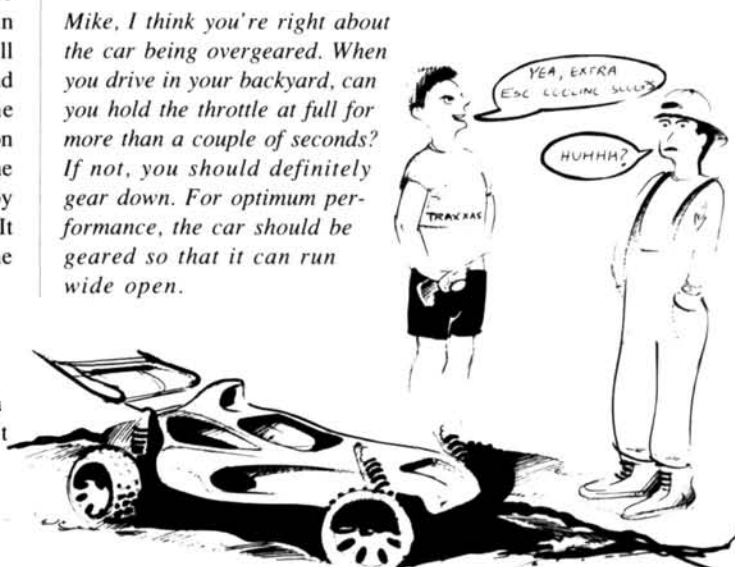
The car doesn't build up very much speed in the backyard, and this is where it overheats. It seems to do well on a flat surface where I can run it

fairly wide open. Could the car be overgeared? Traxxas suggested that I use a forward-only speed controller, but I need reverse where I run it. Other than this, the car runs well. I hope that you can solve my problem!

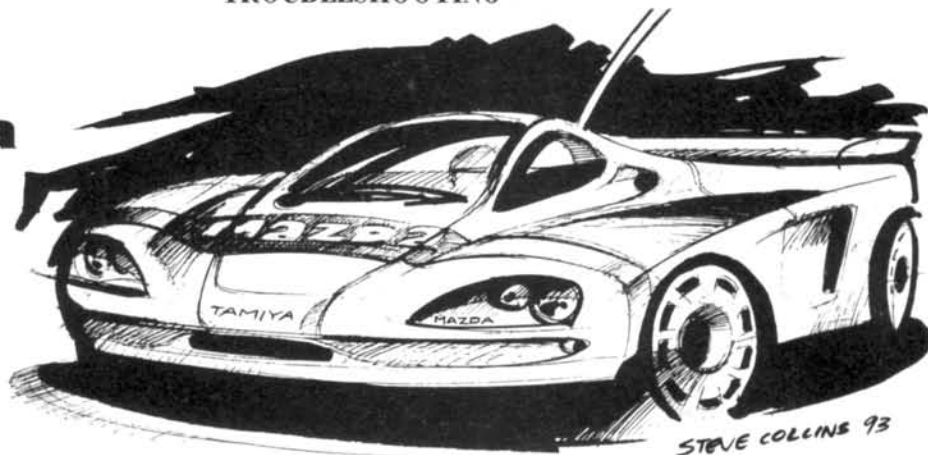
MIKE BRAZEAL
Moberly, MO

Mike, I think you're right about the car being overgeared. When you drive in your backyard, can you hold the throttle at full for more than a couple of seconds? If not, you should definitely gear down. For optimum performance, the car should be geared so that it can run wide open.

Try a 14-, a 13-, or even a 12-tooth pinion gear and see what happens. The worst that could happen is that you'll increase acceleration.



Mazda Mods



I just bought a Tamiya Mazda 787B (I was impressed by the article you wrote in the September '92 issue), and I installed a full, sealed ball-bearing kit, aluminum and titanium screws, nylon nuts, Kyosho's Gold shocks and Tamiya's 6mm carbon-fiber shaft. Here's the problem: Tamiya doesn't offer a variety of spur gears for their on-road cars. Can the after-

market spurs, such as Kimbrough, Du-Mor, Magic Motorsports, etc., be adapted for the Mazda? What should I do?

RONALD V. VILLAFLOR
Manila, Philippines

Ron, I love the Mazda, too! As for adding the different spur, what will you gain? You'll gain the use of more gear ratios, but at an added

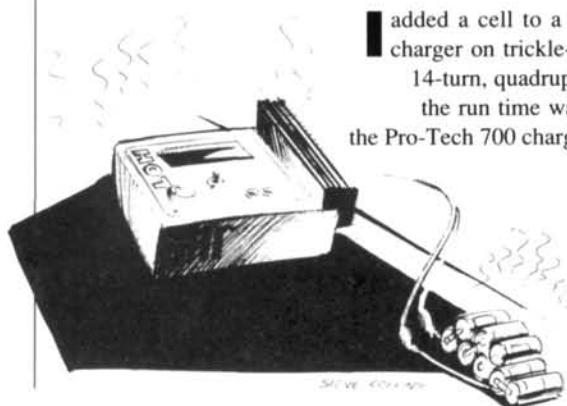
expense. Basically, you'd have to replace the entire rear axle with an Associated or similar on-road axle. You'd also have to come up with adapters for the bearings (I think Dan's R/C makes some). And, to top it off, you'd have to replace the rear rims and tires. If I were you, I'd find a good selection of pinions and be happy with the Tamiya axle. The diff on that car is great!

Volt Happy

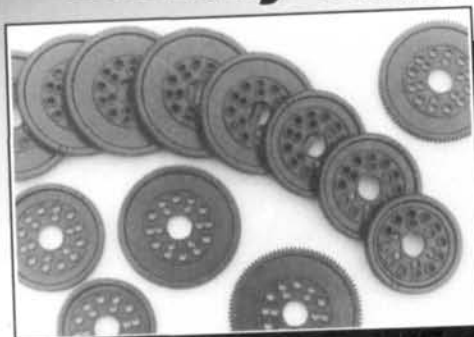
I added a cell to a 7-cell SCRC, and I charged it for 20 hours using my 702 Pro-Tech charger on trickle-charge. The pack lasted only 5 minutes in my JRX-Pro with a Mr. D 14-turn, quadruple-wind, pinion 21, spur 86. I noticed that the car was much faster, but the run time was too short. Is it not getting a full charge from my 702? (I plan to get the Pro-Tech 700 charger if that's the case.) Thank you for your time.

ERIC LAU
Brooklyn, NY

Eric, you're adding cells for the wrong reasons. If you add one or two cells to your pack, you're adding only voltage. The capacity of the pack won't change. Your car will be faster, but your run time will be the same—or even less. I think that your charger is working, but you should fast-charge the batteries until they're warm. If you want a longer run time, gear down.



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Kimbrough Products' 48 and 64-pitch precision-molded spur gears are made of super-strong 4-6 Nylon, and set the standards for concentricity and strength. Because of their precision and concentricity, we don't have to thin and weaken our gears to get less drag... which means more power put to the track!

64-Pitch Precision Differential Gears
with or without Diff Balls installed, Sizes 88, 96, 100, 104, 108, 112, 116, 120, 124, and 128

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with or without Diff Balls installed, Sizes 96, 93, 90, 87, 84, 81, 78, 75, and 72.

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PICKUP PARTY

by RICK SCHWARTZ

KELLOGGS' "SPECIAL K" cereal is made in Battle Creek, MI, but when the ROAR 1993 Truck National Championships were held 40 miles north of there, the area saw the emergence of a very different type of "special K"—racers Kortz and Kinwald. Jeremy Kortz of Team Losi won the Stock division and Brian Kinwald, who drove for Team Associated, captured the Modified crown.

Sponsored by the Rivertown Racers, the August 18 to 22 race was a huge affair, drawing more than 450 participants from 38 states. Drivers arrived as early as Tuesday to start dialing in their trucks on the recently remodeled track. On Wednesday and Thursday, controlled practice began in earnest, and most of the drivers spent every available minute on the drivers' stand, learning the layout and trying to adjust to new track conditions.



Modified Class ROAR Truck Nats champions, left to right: Scott Hughes (third), Mike Dunn (second) and Brian Kinwald (first).

ROAR TRUCK





Stock Class ROAR Truck Nats champions, left to right: Jack Johnson (third), Scott Hughes (second) and Jeremy Kortz (first).



TRUCK NATS



ROAR TRUCK NATS

THE FUN BEGINS?

The first heats were scheduled to begin at 8 a.m., but the first race didn't get going until 10. Two sets of qualifiers, 23 Stock heats and 23 Mod heats totaled 92 races each day. Add the exhibition Gas Class—sponsored by Eustace Moore and MIP—which was run between the Stock and Mod qualifiers, and you have a long, long day to contend with.

QUALIFYING

The most difficult aspect of the qualifying rounds was faced by those participants who had to compete after the sun had set.

The back straightaway, which was actually a long curve, caused problems during the day.

At night, it was almost "undrivable." The track lighting wasn't totally adequate, and it gave most of the competitors fits. The last race ended around 11:30 p.m. As they headed back to the motel, racers thought only of cleaning their cars and going to sleep.

Early on Saturday, we were greeted with the news that Jeremy Kortz held the Stock TQ with a 10-lap run in 4:17.46. He was followed closely by Scott Hughes with a 10/4:19.06 and Rick Vehlou with a 10/4:19.36. Jeremy was hot: his Stock time was faster than the best Mod run. Two down and two to go.

One of the day's highlights was the MIP-sponsored Gas Exhibition Qualifier. With a long back straightaway, these trucks were able to get up to speed, and they flew around the track. The pits were almost empty during these races, and they provided a pleasant break from the tedium of waiting for the next electric qualifier.

Qualifying finished, the A-Main was set for Sunday's showdown. In the third qualifier, Jeremy pulled off a stunning double and took over the Mod top spot from Brian. His time of 10/4:15.89 was almost identical to his top stock run of 10/4:15.91.

THE SPECIAL Ks

In a national championship, three A-Mains are run; this allows each driver to have one bad race and still win. The system has a good side and a bad side. On the positive side: if a racer loses time because of a slip of the hand, he can drop that race and count on his other two. On the negative side: if a racer wins his first

Hot Truck Stuff (New in the Pits)



MORE FROM MOORE

Eustace Moore and MIP introduced Constant Velocity Drives (CVDs) for Losi trucks and cars. These rebuildable module drives operate with one-third as many measurable output interruptions as common universals and have almost no backlash. According to Eustace, they produce less noise, less wear, less

vibration and less binding than stock setups do.

Because they last up to six times longer than standard universals, they're less expensive to maintain. CVDs are available for the existing Losi and new Double-X trannies, and they were used in Brian Kinwald's Associated RC10T, which won in the Modified Class at the Truck Nationals.

Also new from MIP is the Double-X rebuild kit, which includes carbide balls, lube and diff rings. MIP also carries an extensive line of replacement and upgraded parts for Traxxas, Losi and Associated.



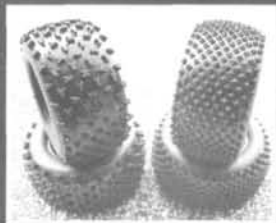
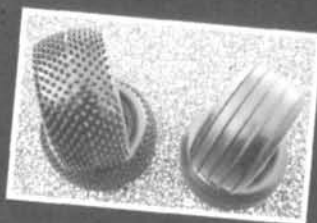
OOH! MR. BILL

Bill Aholt of Mr. Bill's Sporty R/C Parts [5413 Amherst Dr., Parma, OH 44129; (216) 885-9588] showed off his new Mr. Bill's diff balls. He explained that most diff balls have 3 to 5 millionths inch tolerance, but after a year-long search—and many phone calls—he was able to find balls with .25 millionth inch tolerance. These provide a tighter fit and because they're inexpensive (\$5.95 for 50), they'll allow racers to rebuild their diffs more often. Made of carbide steel, the chrome-plated balls are available in 3/32 inch and 1/8 inch, and 4mm versions are coming soon.



LOSI FRONTS AND REARS

The minds at Losi have come up with two new types of truck tires: ribbed fronts that are smaller, low-profile, more aggressive, offer better steering and are available in HT and gold compounds; and gold-compound step-pin rears that provide heavy-duty traction. According to tech master Gil Losi Jr., all the popular Losi tires will soon be available in this gold compound.

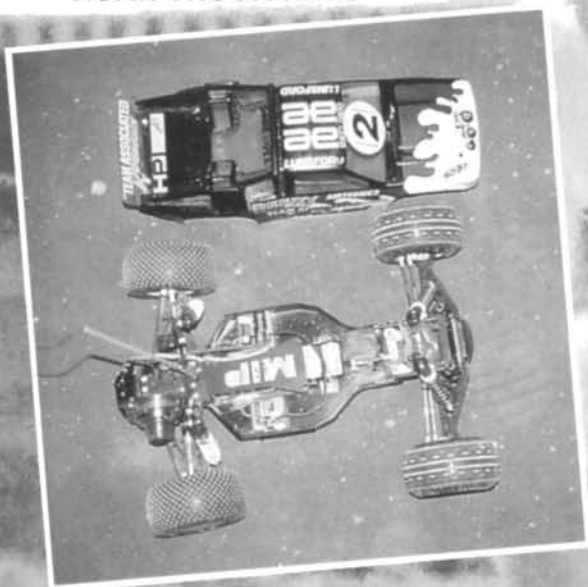


PRO-LINE TRACTION ACTION

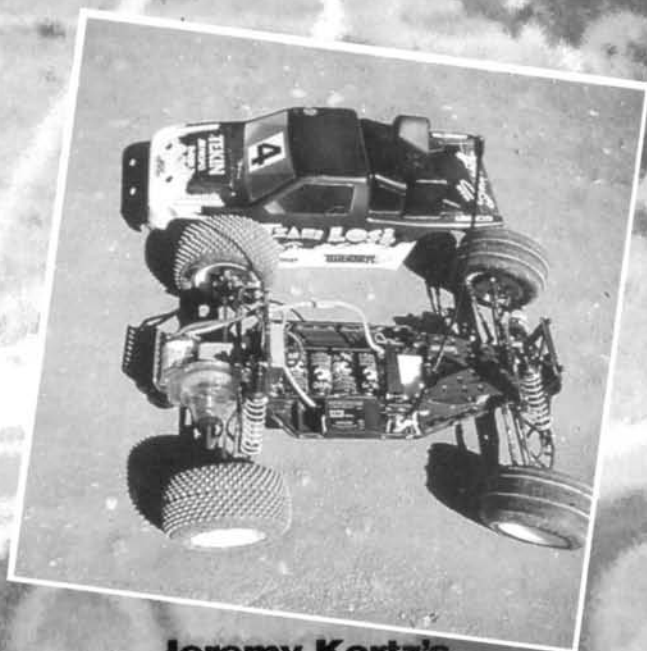
Tim Clark, Pro-Line's operations manager, showed off his company's new Y-design rear tire. It's designed for use on loamy tracks, but if snipped, it will work on harder surfaces. It has a much longer tread

and traction "life" than mini-pins. Pro-Line also tested the remake of the 8130 spike. The pattern was opened so that the tire isn't as dense. This reduces clogging on softer tracks. Pro-Line also put the tread on the 8090 carcass.

ROAR TRUCK NATS



**Brian Kinwald's
winning RC10T**



**Jeremy Kortz's
winning LX-T**

two, as Jeremy did in Stock, he can elect to sit out the third race, and this is exactly what happened. The drama and excitement usually associated with the final Stock A-Main was lacking because the racers were only vying for second place and down. The winner had been determined before the race had been run.

The event's major controversy arose after the first Stock A-Main race, when it was announced that Jeremy, the winner, would be docked 10 seconds for a jump start. This penalty moved him from first to seventh place and could have put him out of contention for the title. He lodged a protest, and after much discussion and the viewing of several videotapes by race director Ted McCarthy and other ROAR officials, the decision was reversed.

Jeremy ran a 10/4:11.92 in his first Main and a 10/4:12.53 in the second heat, and he wrapped up the win and the championship. His winning times were almost 4 seconds better than his TQ time. Scott took second place overall (two second places and a third place), and Jack Johnson finished third (two third places and a second).

The next event was the finals of the Exhibition Gas Race. "Mr. MIP," Eustace Moore, provided all the trophies and also participated. The race was won by Rick

STOCK TRUCK

Qual.	Fin.	Name	Chassis
1	1	Jeremy Kortz	Losi LX-T
3	2	Scott Hughes	Assoc. RC10T
5	3	Jack Johnson	Losi LX-T
2	4	Rick Vehlow	Traxxas LS-II
9	5	Scott Roberts	Losi LX-T
6	6	Matt Ledger	Assoc. RC10T
7	7	Mike Dunn	Losi LX-T
4	8	Jason Ruona	Assoc. RC10T
8	9	Scott Brown	Losi LX-T
10	10	John Anderson	Losi LX-T

MODIFIED TRUCK

Qual.	Fin.	Name	Chassis
2	1	Brian Kinwald	Assoc. RC10T
3	2	Mike Dunn	Losi LX-T
5	3	Scott Hughes	Assoc. RC10T
6	4	Rick Vehlow	Traxxas LS-II
10	5	Greg Hodapp	Assoc. RC10T
1	6	Jeremy Kortz	Losi LX-T
7	7	Matt Ledger	Assoc. RC10T
8	8	Gil Losi Jr.	Losi LX-T
9	9	Brian Dunbar	Losi LX-T
4	10	Mark Pavidis	Assoc. RC10T

Expert Advice

In a big race like this, it's great to see young, inexperienced drivers getting technical hints and driving tips from experts such as Gil Losi Jr., Jack Johnson, Brian Kinwald and Jay Halsey. All the team drivers bent over backward to spend time with these young—and not-so-young—racers, helping them in every way they could.

One of the most interesting topics of discussion was that the Team Associated Mod drivers were using Losi Hydra Drives on their trucks. Gene Hustings of Associated even said, "Any racer who owns an RC10 or RC10T should try the Hydra Drive to see if it improves his vehicle's handling." Because the track was pretty bumpy, most racers thought that the Hydra Drive was beneficial, especially in the Mod Class.



Vehlow, who turned 27 laps in 12:05.24. Eustace finished second with a time of 27:12:11.21.

MAINS

The day's last event would determine the Modified Champion. Sitting on the front row were TQ Jeremy, Brian and Mike Dunn. As the flag fell, Jeremy shot out and briefly gained the lead, but he was soon hit and out of contention. Brian won with a 10-lap run in 4:06.57. Greg Hodap charged from 10th to take second, and Mike came in third. The second qualifier allowed Jeremy to make a comeback; he finished

first with a scorching 10/4:01.94. Mike came in second, and Brian placed third.

The day's final A-Main set the stage for a showdown between Jeremy, Brian and Mike; any one of them could win the title. Jeremy immediately took the lead, followed closely by Brian. On the eighth lap, Jeremy was penalized for cutting the track and was required to let a driver pass him. He never recovered and finished seventh in the Main and sixth overall. Scott took the lead, and after he had battled Rick for the rest of the race, he finished first in 10/4:05.08. Rick finished second, and Brian took third. Third place was all Brian

needed to wrap up a hard-fought Modified championship. Mike finished second overall, and Scott came in third.

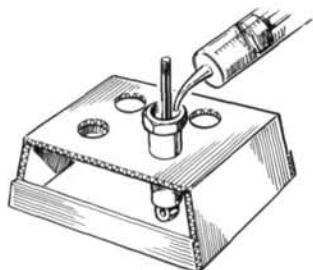
It was a long three days, but everyone went home with plenty of hard racing under his belt. The Rivertown Racers were stretched to the limit, but they did an excellent job of maintaining the track. Thanks to photographer and spectator Neiland Pennington, I was able to get all the shots I needed. Even though the days were long and hot, we *did* have fun. ■

Motor	Batteries	ESC	Tires	Sponsors
T U O D A N H	Orion	Tekin	Losi	Team Losi, Twister, JR Remote Control, Tekin, Lunsford, MIP, Deans, Orion, Jammin' Products
	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, Novak, Futaba, Lunsford, RCPS, A&L, RPM, Yokomo, MIP
	Trinity	Novak	Pro-Line/Losi	Team Losi, Trinity, Novak, JR Remote Control, Lunsford, Deans, Oakley, Jammin' Products, MIP
	Orion	Novak	Pro-Line	Traxxas, Peak Performance, Novak, Airtronics, MIP, Lunsford, Orion, Pro-Line, Kimbrough, RCPS
H A N D O U T	Orion	Novak	Losi	Peak Performance, Team Losi, Orion, Jammin' Products, Novak, MIP, Lunsford, Kimbrough
	Reedy	Novak	Pro-Line	Associated, Reedy, Novak, RCPS, Lunsford, Pro-Line, JR Remote Control, MIP
	Stealth	Novak	Losi	Team Losi, Race Prep, Novak, Stealth Batteries, KO Propo, Jammin' Products, Skull Racing
	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, RCPS, Airtronics, MIP
H A N D O U T	Excell	Novak	Losi	Team Losi, Lunsford, Novak, Revolution, Excell Racing Batteries, Four Seasons R/C
	Trinity	Novak	Losi	Team Losi, Trinity, Novak, Lunsford, KO Propo, Ranch Pit Shop, Jammin' Products, Mad Mike's Motor Service

Motor	Batteries	ESC	Tires	Sponsors
Reedy	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, Yokomo, Competition Electronics, RCPS, MIP, HPI, Kimbrough, Waldo Racing
Race Prep	Stealth	Novak	Losi	Team Losi, Race Prep, Novak, Stealth Batteries, Jammin' Products, Skull Racing
Reedy	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, Novak, Futaba, Lunsford, RCPS, A&L, RPM, Yokomo
Peak	Orion	Novak	Pro-Line/Losi	Traxxas, Peak Performance, Novak, Airtronics, MIP, Lunsford, Orion, Pro-Line, Kimbrough, RCPS
Reedy	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, Novak, RCPS, MIP, Lunsford, JR Remote Control
Twister	Orion	Tekin	Losi	Team Losi, Twister, JR Remote Control, Tekin, Lunsford, MIP, Deans, Orion, Jammin' Products
Reedy	Reedy	Novak	Pro-Line	Associated, Reedy, Novak, RCPS, Pro-Line, MIP, JR Remote Control, Lunsford
Trinity	Trinity	Novak	Losi	Team Losi, Trinity, Futaba, Novak, Jammin' Products, Oakley, Lunsford
Trinity	Trinity	Novak	Losi	Team Losi, Trinity, Pro-Trax Raceway
Reedy	Reedy	Novak	Pro-Line	Associated, Reedy, Pro-Line, Novak, Airtronics, RCPS, Oakley, Kimbrough, Dirt Squirt, Yokomo

PIT TIPS

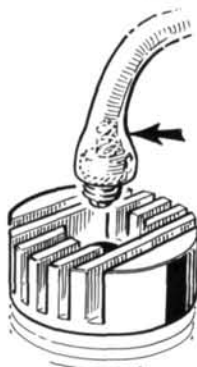
by JIM NEWMAN



SHOCK-FILLING STAND

Punch four holes in a piece of corrugated cardboard, fold it as shown, and use a hot glue gun or tape to stick a strip of cardboard to the base. Insert your shocks in the holes while you fill them; this will hold them firmly while the air bubbles rise and disperse.

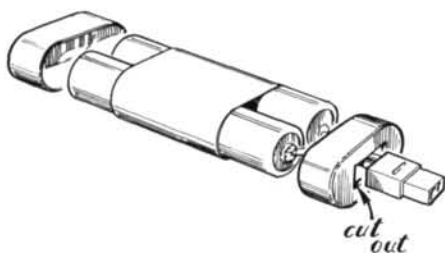
Jeff Smith, Painsville, OH



FLEXIBLE GLOW-PLUG WRENCH

It's difficult to screw a glow plug into a deeply recessed head. Force a piece of rubber fuel line over the plug, and insert it in the hole. Turn it to make sure that it isn't cross-threaded, then pull the tube off and use a regular plug wrench to gently tighten the plug.

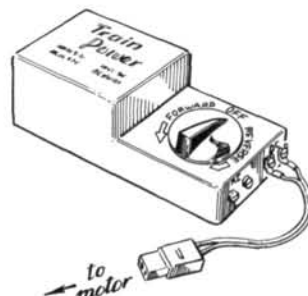
Greg Kipp, Green Bay, WI



MAKING PACKS FIT THE JUNIOR T

Most battery packs won't fit the Junior T because of the end-caps of the pack. You can remove the caps by cutting a larger hole through which you can pull the plug and pulling off the rear cap as usual. To prevent the battery pack from shorting, insulate its ends with tape.

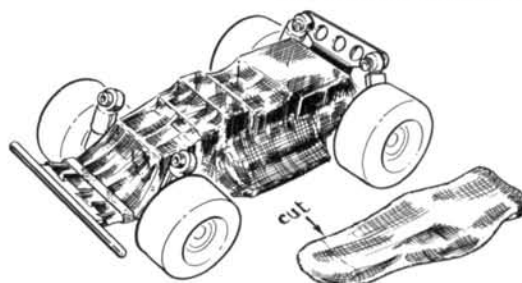
Justin Hiatt, Parker, CO



MOTOR BREAK-IN POWER SOURCE

Use a model-train transformer to provide low-voltage power when you break in your motors. Equip it with a plug to match your system, plug in the motor and use a voltmeter across the DC terminals to set the necessary 3 volts. Use the dial to ensure that the motor is running in the correct direction. Caution: when using any electronic device, e.g. a charger or a transformer, always monitor it for excess wear and shorts; never leave a running motor or charger unattended.

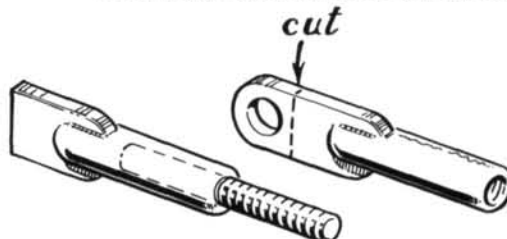
Gene Brooks, Greenfield, IN



CHASSIS DIRT EXCLUDER

To make a fine mesh filter that will prevent dirt from entering the chassis but still allow air to cool the electronics, cut the toe off a nylon sock, stretch the sock over the chassis, and secure the ends with tape or a rubber band.

Barry Trapp, Rosetown, Saskatchewan, Canada

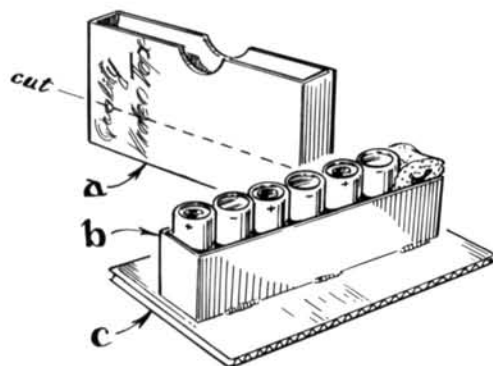


LOSI DUST-COVER EXTENDED NUT

To make a butterfly nut that's easy to insert into tight spaces, screw a piece of 4-40 threaded rod into a ball link, and cut the eye off the opposite end.

Richard Eads, Anaheim, CA

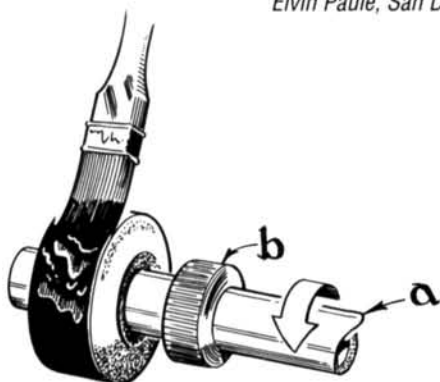
PLEASE NOTE: be sure to print your name and full address clearly on every letter and sketch you send to "Pit Tips." We can't publish many good tips because we don't have the senders' names or addresses.



BATTERY-ASSEMBLY JIG

Cut a discarded VCR tape box as shown (a), and set your Ni-Cds in it (b). (If necessary, stuff foam into the end of the box to hold them firmly.) To provide more stability, glue the box to a bigger piece of cardboard (c).

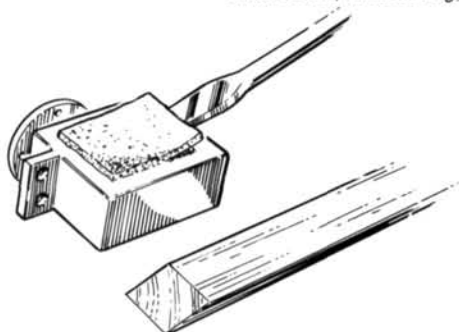
Elvin Paule, San Diego, CA



TRACTION-COMPOUND HELPER

Holding a tire while you apply traction compound can be messy. Find a piece of PVC plumbing pipe (a) that will firmly fit inside the tire. Wind tape (b) around the end of the pipe, and push the tire onto the pipe as far as the tape. Twirl the pipe as you apply compound to the tire. Secure the pipe in a holder until the compound has dried.

Brian Sione, Whitesburg, KY



REMOVING SERVO TAPE

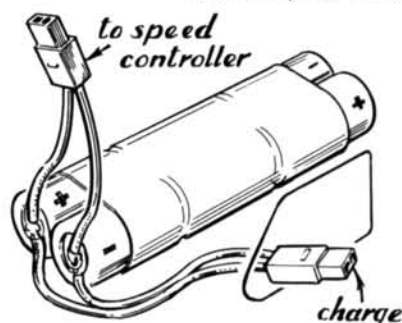
To remove old servo tape, carefully scrape off as much as you can with a flat screwdriver or a wooden coffee stirrer that has been sanded to form a chisel tip. Take care not to scar the servo case. Remove the rest with Lift Off—a spray that removes residue from all sorts of sticky products. You can find it in hardware stores and supermarkets.

Jeremy Duttrey, Denver, PA

ON-BOARD GLOW BATTERY

Are you tired of carrying around starter batteries? Mount a single 1200mAh Ni-Cd to your car's chassis, and solder lead wires to each end (positive and negative). Route the positive lead through a switch and then to an alligator clip that you can attach to the glow plug. (Make sure the clip is insulated from the rest of the engine to prevent it from shorting.) The negative wire runs straight to a lug or bolt on the engine. To start your car, just turn on the switch and crank the engine. When the engine is running, just turn the battery off. For more reliable connections, you can use a solder lug and an R/C plane wheel collet with a fuel-line rubber washer under it as an insulator (as shown by the arrows).

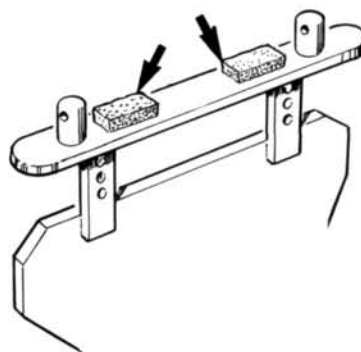
Josh Campbell, Yakima, WA



BATTERY CHARGING PLUG

Wire a separate plug across your battery pack (in parallel with the plug to the speed controller). Now you don't have to remove the pack to charge it; just pull the plug out through a convenient window and plug in the charger.

Bruno Lobo, London, Ontario, Canada



QUIETER LOSI TRUCK MOUNTS

Glue little foam-rubber pads to your Losi truck mounts, then firmly press down on the body shell before you insert the pins. This will compress the pads, keeping everything tight and quiet.

Dan Kunkel, Wheaton, IL



YOUNG &
GUN

by JEFF BRONSTEIN

THE FIRST OF Trinity's* on-road designs was truly—if you'll forgive the pun—an “evolution” in $\frac{1}{10}$ -scale technology. When team driver Joel “Magic” Johnson took the checkered flag at the IFMAR World Championships, never before had an unproved prototype car so dominated a world-class event.

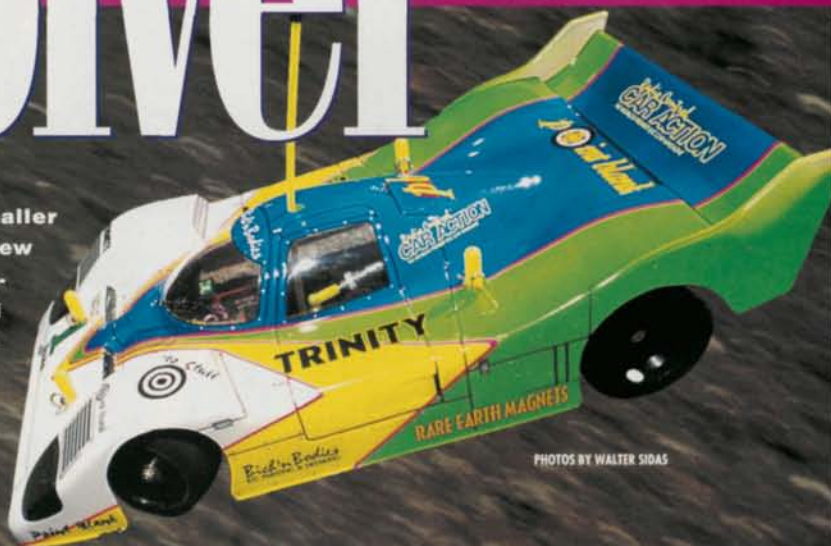
TRINITY Revolver

12p

Now the evolution continues in a smaller scale, and the performance of Trinity's new $\frac{1}{12}$ -scale Revolver has been equally impressive. Already, this young gun has chalked up several major wins, including the ROAR Oval Nationals (12ss) and the ROAR On-Road National Championships (12p). This kind of firepower will surely make the competition run for cover. And, if you pardners aim to win, the only way to beat Trinity's on-road revolution may be to join it.

Twelfth-scale racing isn't as popular as it has been. This is unfortunate, because $\frac{1}{12}$ scale helped create many of R/C's greatest personalities, such as Tony Neisinger, Chris Doseck, Kent Clausen, Masami Hirotsuka, Frank Calandra, and, of course, Joel “Magic” Johnson. Because $\frac{1}{12}$ scale requires more skills than most categories of R/C racing, anyone who is competitive in $\frac{1}{12}$ scale will probably drive competitively in any R/C event.

Trinity's new Revolver 12p should help spark new life in $\frac{1}{12}$ -scale racing. There's more than meets the eye to this smaller version of the world champion Evolution. Trinity designer and builder Jim Dieter took a new approach with the Revolver. He wanted to keep its weight down and preserve the Evolution's advanced performance characteristics. The front geometry, which incorporates Reactive Caster Suspension (RCS), is essentially the same as those of the EV10 and EV10ss. The RCS system has two adjustable caster links that, as the suspension is compressed, alter the tire's caster to suit a variety of corners: less caster in tight, slow corners and more in sweeping, fast turns. The links are infinitely adjustable, and they allow you to change caster, camber and even roll center to fit any track or driving style.



PHOTOS BY WALTER SIDAS

REVOLVER 12p

Unlike the Evolution, the Revolver's rear pod doesn't use the "MonoSphere" or the three-dimensional, Triad shock-damping setup; and the batteries are in the conventional saddle-pack design instead of the in-line arrangement. In earlier Revolver prototypes, Dieter tried to imitate the Evolution's rear-end design, but it proved impractical in terms of weight and size. The Revolver's rear pod is attached to the chassis with two pivot balls and a single Delta-type shock with a silicone-filled lateral damping rod. This final compromise is simple and effective.

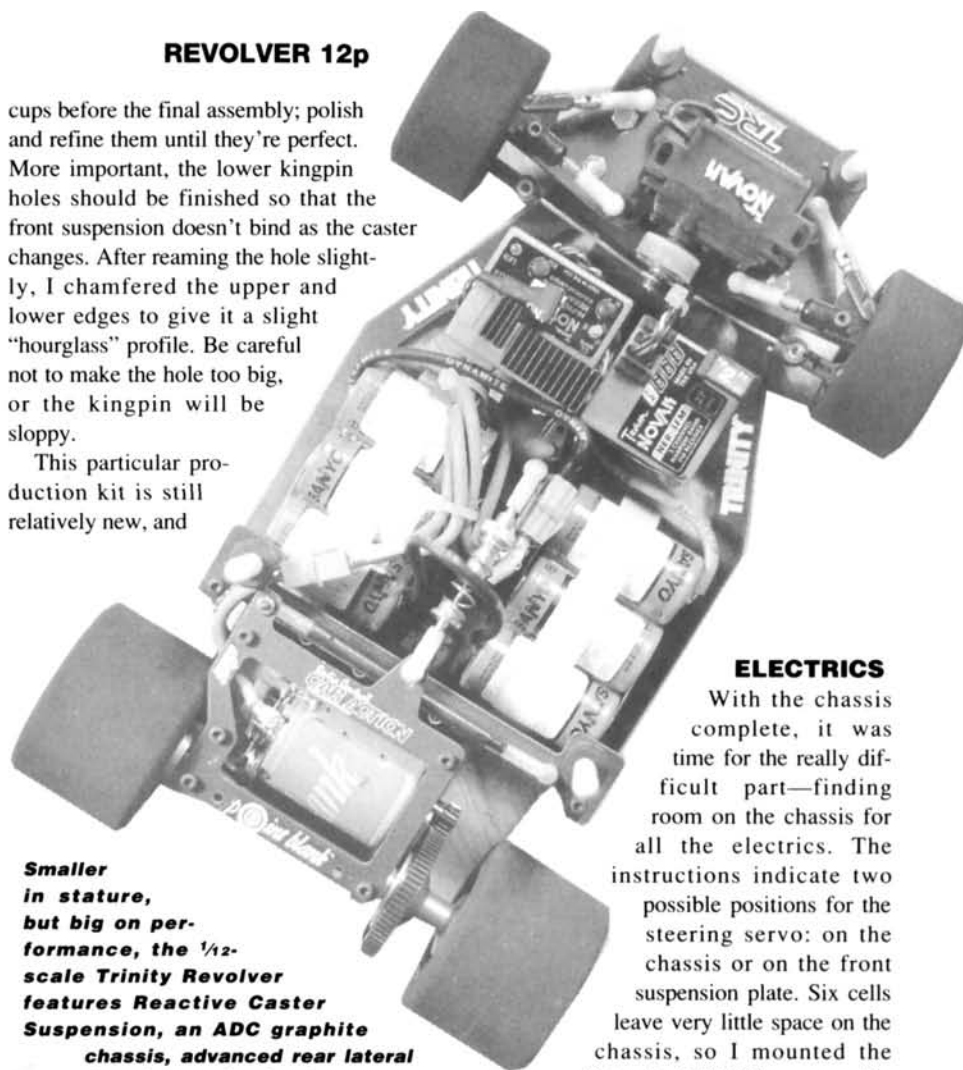
ASSEMBLY

Before I started to build the kit, I knew the Revolver was special. In addition to Dieter's ingenious front and rear suspensions, the kit includes many other serious racing parts. First, the ADC graphite-sandwich chassis is very strong and extremely light. A hollow, graphite rear-axle pro diff, a "Magic" spur, and precision ball bearings throughout are signs that this car is ready to race. Finally, mounted and trued TRC natural-rubber, green-dot foam tires on ZR-1 wheels are the icing on the cake. Even shock fluid and diff lube are included.

Building the kit is a snap, but attention to detail is extremely important. If you rush to

cup before the final assembly; polish and refine them until they're perfect. More important, the lower kingpin holes should be finished so that the front suspension doesn't bind as the caster changes. After reaming the hole slightly, I chamfered the upper and lower edges to give it a slight "hourglass" profile. Be careful not to make the hole too big, or the kingpin will be sloppy.

This particular production kit is still relatively new, and



Smaller in stature, but big on performance, the 1/12-scale Trinity Revolver features Reactive Caster Suspension, an ADC graphite chassis, advanced rear lateral damping, professional accouterments and world-championship handling.

some parts required slight modifications not indicated in the instructions. I understand that the kit has been altered so that these modifications are no longer necessary. The front-suspension support blocks had to be relieved where the RCS pivot balls are mounted, and the lower rear-pod plate required a slight modification to ensure enough clearance for the left tire. I shortened the front-suspension turnbuckles by 1/8 inch on each side; and I slightly roughened the bases of the rear-pod

pivot balls to prevent them from turning when the screws are tightened. I also Dy-Loned everything in the box that I could lay my hands on.

ELECTRICS

With the chassis complete, it was time for the really difficult part—finding room on the chassis for all the electrics. The instructions indicate two possible positions for the steering servo: on the chassis or on the front suspension plate. Six cells leave very little space on the chassis, so I mounted the Airtronics* 94143 servo as far forward as possible. Novak's*

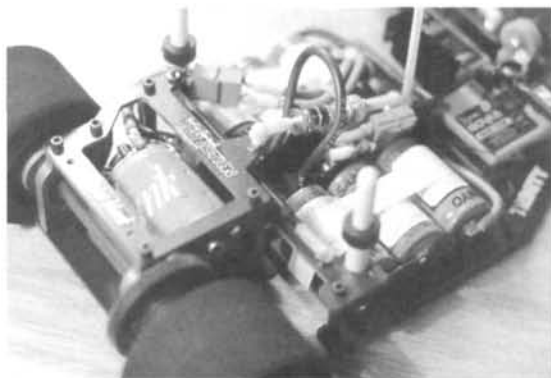
NER-3FM receiver left just enough room for the Novak 410-HPc ESC to sit just in front of the batteries. Now, with hardly any margin left to give a transponder a lift, I routed the wires around, over and under—whatever I could to get the job done. The whole package was topped off by a Point



The Reactive Caster Suspension (RCS) adds real ammunition to the Revolver's performance. It allows the car to turn in more aggressively and hold, just like its big brother. Unlimited adjustments and combinations of caster, camber, toe-in and even roll center will keep every driver satisfied.

complete your car, you'll overlook something vital. There are a lot of great tips in the instruction manual to help you along.

It takes patience to get the suspension just right. The front link and the rear T-plate pivot balls should move freely in the nylon



Except for its new lateral damping tube, the Revolver's rear pod is essentially the same as that on many other 1/12-scale cars. This single device is filled with a pasty silicone lubricant that gives the pod a shock-like feel. One Delta-type shock mounted in the center of the chassis does most of the work over the bigger bumps.

TRICK PRODUCTS



Temperature Monitoring Tape

130°F 54.4°C	130°F 54.4°C
140°F 60°C	140°F 60°C
150°F 65.6°C	150°F 65.6°C
160°F 71°C	160°F 71°C
170°F 77°C	170°F 77°C
180°F 82°C	180°F 82°C
190°F 88°C	190°F 88°C
200°F 92°C	200°F 92°C

(electric shown)

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For electric motors or gas engines.

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TRICK PRODUCTS
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TRINITY REVOLVER 12p

Type Electric on-road
Scale 1/12
Price \$250

DIMENSIONS

Overall length 10.5 in.
Width 6.5 in.
Wheelbase 7.75 in.
Front width 6.5 in.
Rear width 6.5 in.

WEIGHT

Gross (w/batteries) 1 lb., 6.4 oz.

CHASSIS:

Type Pan
Material Carbon graphite

DRIVE TRAIN

Type Direct drive
Primary Pinion/spur
Differential(s) Ball
Bearings/bushings Ball bearings

SUSPENSION

Front: Type Reactive Caster
Suspension (RCS)
Damping Floating
kingpin/coil-spring

Rear: Type Pivot-ball-mounted T-plate
Damping Delta shock/lateral
damping rod

WHEELS

Front: Type TRC ZR-1
Dimensions (DxW) 1.4x0.965 in.
Rear: Type TRC ZR-1
Dimensions (DxW) 1.4x1.5 in.

TIRES

Front/rear TRC green-dot
natural foams

ELECTRICS

Motor, battery, speed controller
Not included

OPTIONS TESTED

Airtronics CS-2P transmitter, Novak
NER-3FM receiver, Novak 410-HP ESC,
Sanyo 1400 SCR cells, Point Blank 12-
degree stock motor, Airtronics 94143
steering servo, Corally* center-point
steering linkage, Trinity "Zero-Gravity"
pinion, Litespeed* Dy-Lon (fluorescent
yellow), Andy's Nissan NTP-90 body,
Bich'n Bodies painting and detailing.

HITS

- Easy-to-adjust front geometry. • Very effective lateral damping rod. • A blend of innovative and well-proven features. • Competition-ready, right down to the rubber. • Great instructions and setup tips.

MISSES

- Certain parts required slight modifications. • Kingpin holes were somewhat difficult to refine.

Blank* 12-degree stock motor and an
Andy's* Nissan NTP-90 body painted by
Bich'n Bodies*. Finally, I had a finished
racecar! Let's go racing!

TEST DRIVE

Running on pavement is great, but I like
racing 1/12 scale on carpet, in really tight,
5-foot lanes. It's 8 minutes of man,
machine and 1,500 square feet of Ozite.

A wide variety of cars race at my local
track, and I wanted to see how the Revolver
would fare against them. When I arrived,
the word on the Revolver was already out; I
wasn't the only cowboy in the corral con-
sidered armed and dangerous.

It only took a few warm-up laps to dial
in the car, and after that, it was time for the
first shootout. Yep, pardners, this little gun
shoots straight and true, and boy, can it
turn! After the second race, I started to
adjust the front geometry and the lateral
damping rod. The stiffer I made the damp-
ing, the better the car seemed to turn.
It was as though I couldn't break the rear
end loose. A little more camber, and I
had this sharp-shooter locked on a rail

around the tight course.

The Revolver handles better than any
car I've ever driven on a 1/12-scale track. It
might take me weeks to test every aspect
of its suspension, but I'll have fun doing it.

Trinity has taken their revolution to the
street, and they've challenged the competi-
tion to a duel. Other manufacturers have
spent years developing and refining their
kits in an attempt to dominate. Trinity has
done it practically overnight. This year's
1/12-Scale World Championship will be
held in France, and you can bet your boots
that the Revolver will be smokin'.

*Here are the addresses of the companies men-
tioned in this article:

Trinity Products Inc., 1901 E. Linden Ave., No. 8,
Linden, NJ 07036; (908) 862-1705.

Airtronics Inc., 11 Autry, Irvine, CA 92718; (704) 830-
8769.

Novak Electronics Inc., 18910 Teller Ave., Irvine, CA
92715; (714) 549-0875.

Point Blank, a subsidiary of Trinity Products Inc. (see
address above).

Andy's R/C Products, 1710 Grevalia Ct., Ontario, CA
91761; (714) 923-6155.

Bich'n Bodies, 4903 Cloverfield Rd., Pearland, TX
77584; (713) 485-0413.

Corally, Groene Kruislan 53, Dordrecht Holland, 3319
RH; 31-78-212698.

Litespeed, P.O. Box 4765, Spokane, WA 99202; (509)
535-2717.

Boca BEARING



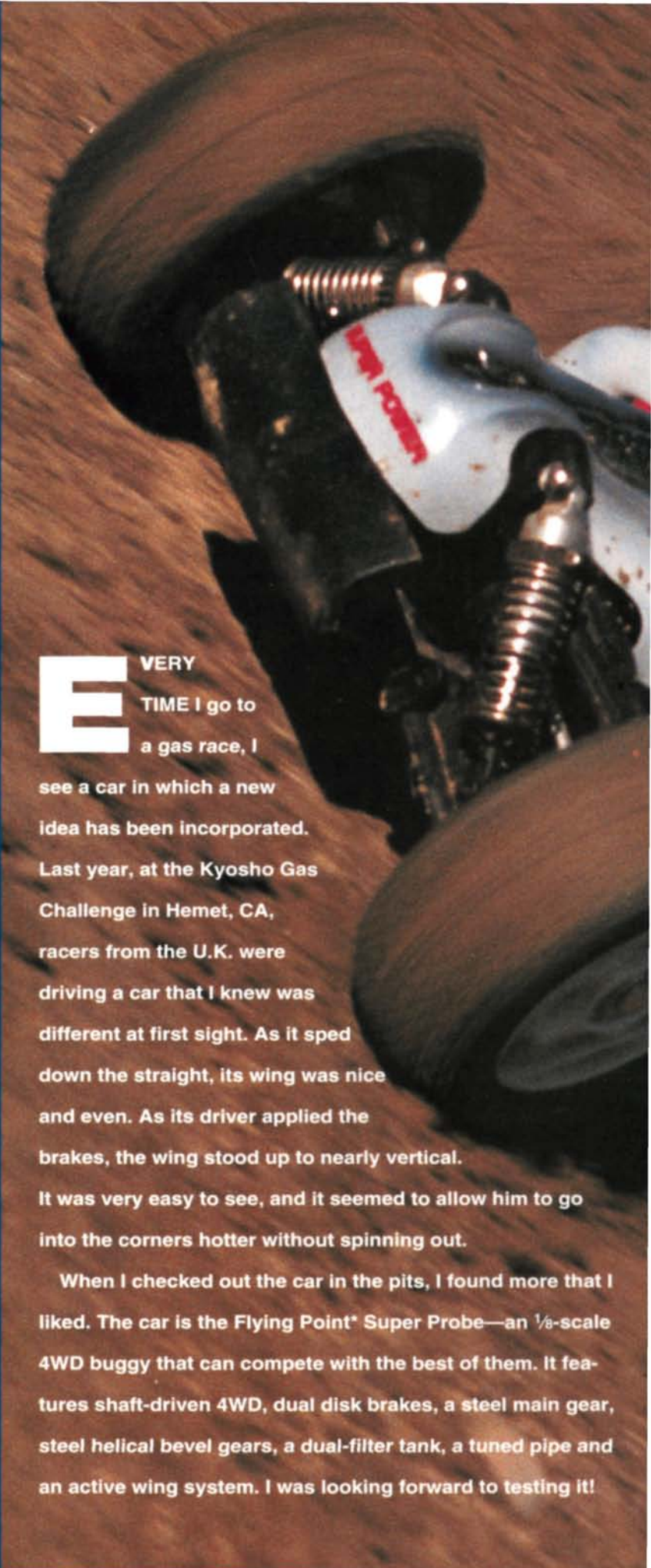
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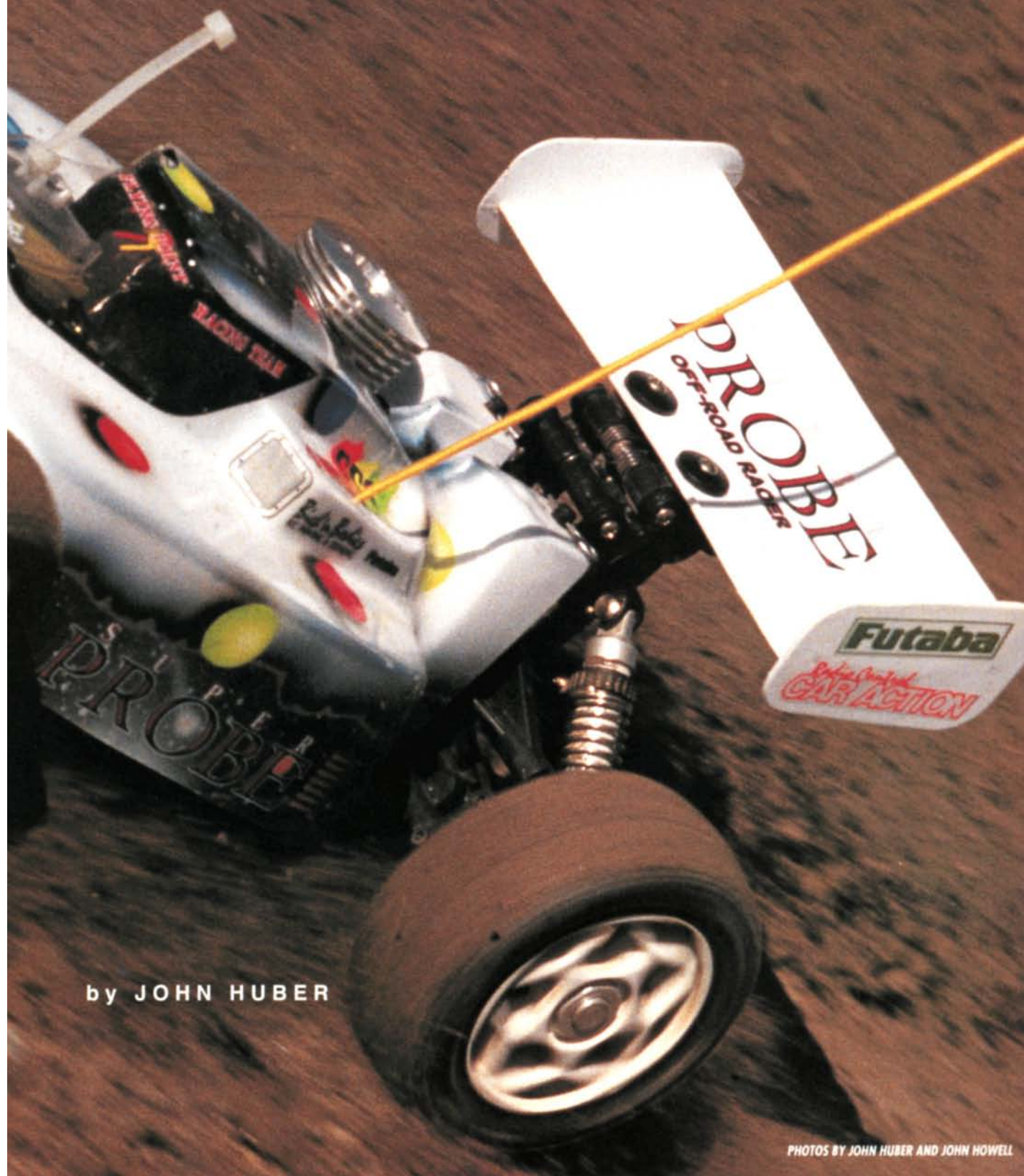
Send To: Boca Bearing Dept. A • Suite 2304
7040 W. Palmetto Park Rd. • Boca Raton, FL 33433



EVERY TIME I go to a gas race, I see a car in which a new idea has been incorporated. Last year, at the Kyosho Gas Challenge in Hemet, CA, racers from the U.K. were driving a car that I knew was different at first sight. As it sped down the straight, its wing was nice and even. As its driver applied the brakes, the wing stood up to nearly vertical. It was very easy to see, and it seemed to allow him to go into the corners hotter without spinning out.

When I checked out the car in the pits, I found more that I liked. The car is the Flying Point® Super Probe—an 1/8-scale 4WD buggy that can compete with the best of them. It features shaft-driven 4WD, dual disk brakes, a steel main gear, steel helical bevel gears, a dual-filter tank, a tuned pipe and an active wing system. I was looking forward to testing it!

Up, up and away!



by JOHN HUBER

PHOTOS BY JOHN HUBER AND JOHN HOWELL

FLYING POINT SUPER PROBE

I'll tell you about the rear wing first because it's such an interesting feature. Two rods connect the rear upper arms to the wing, which is mounted on a hinge. At full ride height, the wing is at a very steep angle; at normal ride height, the wing is at a minimal angle; and at full compression, the wing is flat. The theory is that the wing will increase rear downforce when the weight shifts forward, as under hard braking. When the car accelerates from a stop, the wing flattens, because weight is shifting rearward and less rear traction is needed. During testing, I found that if I took a large jump and kept on the throttle, the car continued to nose up until it flipped over! I did this a few times, and eventually cracked one side of the wing mount. Jumping with the Probe took some getting used to, but its performance on the ground was flawless.



Although I'm not a big fan of aluminum shocks that aren't anodized, I was surprised at how well these worked.

DRIVE

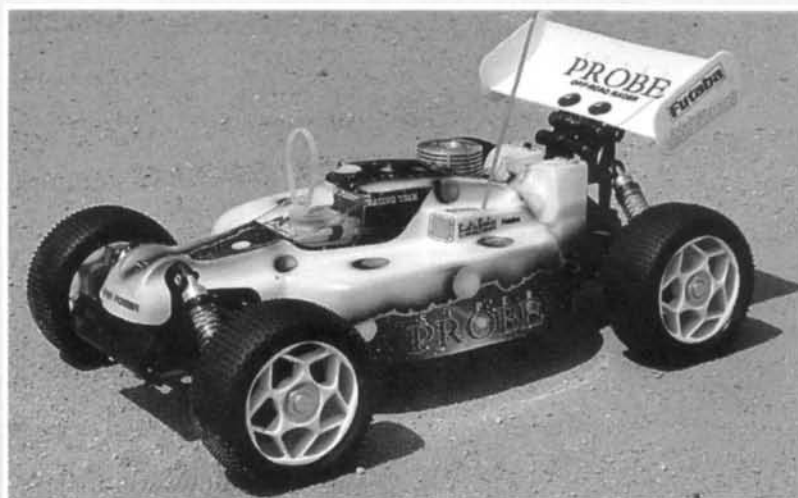
The drive train is very beefy; it has a steel diff and main and ring gears. For smooth operation, the ring gear is a helical cut. I was a little wary of the nylon diff cases, because the diff pins didn't fit tightly in them. I thought this was a weak spot that might cause the diffs to blow. I'm glad to say, however, that they're holding up fine after heavy use, but they do leak the heavy silicone diff lube that I filled them with.

A big plus is the set of real bearings for the clutch bell. Most cars come with cheap needle bearings that require constant attention and lubrication with a good grease. If you don't pay attention to the bearing, it will melt and cause the bell to go out of round, and you'll end up with a chewed-up spur gear, too.

Universals are included for the front end, but not for the rear. For a smoother drive train, I recommend that you get them.

CHASSIS

The assembled Probe has a very stiff chassis. An aluminum plate connects the front,



Scale 1/8
Sug. retail price \$639.95

DIMENSIONS:

Overall length 17.25 in.
Width 12 in.
Wheelbase 12.6 in.
Front track 10 in.
Rear track 10 in.

WEIGHT:

Gross 7 lb., 10 oz.

CHASSIS:

Type Pan
Material Aluminum

DRIVE TRAIN:

Primary Spur/pinion/clutch
Transmission Gear
Differential(s) Planetary gear
Bearings/bushings Ball bearings

SUSPENSION:

Front: Type Upper/lower A-arms
Damping Oil-filled coil-overs

WHEELS:

Front/Rear: Type One-piece plastic
Dimensions (DxW) 3x1.75 in.

TIRES:

Front/Rear: Mini-pin

POWERPLANT:

Engine Not included
Pipe Tuned

OPTIONS TESTED: OPS Pro Corsa

engine, McCoy MC-9 plugs, JR® 4735 steering servo, Futaba® 9301 brake/throttle servo, Futaba 3PB PCM radio.

HITS

• Steel helical ring gears • Steel main gear • Active wing • Dual-filter tank
• Dual brakes • Ball-bearing clutch bell • Light flywheel • Chassis brace • Tuned pipe included

MISSES

• Plastic diff cases • Non-anodized shocks • No rear universals • No upper shock adjustments



A really trick gas tank is included in the kit. It features a molded-in, coarse screen at its top to keep out large debris; and, in the rear, it has a removable fine-mesh, metal-screen filter. Dirt, beware!

center and rear gearboxes to form a strong double-deck design. The shock towers are made of nylon and are incorporated into the body mounts. Although the towers aren't adjustable, they're very strong and shouldn't give you any trouble. The arms are also very strong. Up front, the upper arm uses a second threaded rod to ensure that the arm doesn't fail. The rear lower arms are shaped so that the main mass of the arm

SUPER PROBE



As the rear suspension lifts, the wing flips up and increases rear downforce. This helps during braking, when the weight of the car shifts forward.

is shifted upward. This gives the arms a little more clearance.

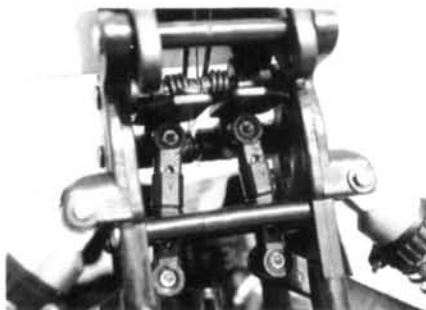
SHOCKS

I don't quite know what to say about the shocks. They're oil-filled aluminum, but they aren't anodized. This is a major no-no in my book! As the piston moves inside the shock, it will wear the metal and foul the oil. I ran them anyway, and I found, to my surprise, that they work really well! I haven't bothered to change the oil in months, but they still feel smooth and properly filled. I'm sure that when I open one, the oil will be black, but what the heck—they work!

OTHER GOODIES

For better stopping power, dual brakes are included. Fiberglass disks come in the kit, but racing disks are available. The linkage is a little different from most that I've seen, but it works well.

The kit's fuel tank is awesome. When you flip the top open, there's a coarse molded-in screen that keeps out large



Here's a sneak peek at the internal workings of the active wing system. The two rods connect the rear upper arms to the wing. As the suspension works, the wing moves up and down.



pieces of debris. Its action is free enough to allow quick pit stops. At the rear of the tank is a removable, fine-mesh, metal-screen filter. A cap and fuel fitting that have been attached to the rear of the tank form the second filter.

ENGINE

I used an OPS* Pro Corsa engine to power the Probe. I had used an OPS in my old Pirate and loved it; this one is supposed to be

even faster! Its outside is identical to that of other models, but boy, what detail there is inside! The connecting rod is completely airfoiled and beefed up. The piston and crank have been reworked for greater fuel flow. It also comes with a cone-type head button and a large-bore carb.

Because some cone-type plugs cost \$8 to \$10, I bought a standard head button and stuck to the McCoy* MC-9 plugs. As for the bigger carb—more power! Yee-haaaaa! I like the fact that with this body, most of the head is exposed to the air. This means that it will run very coolly.

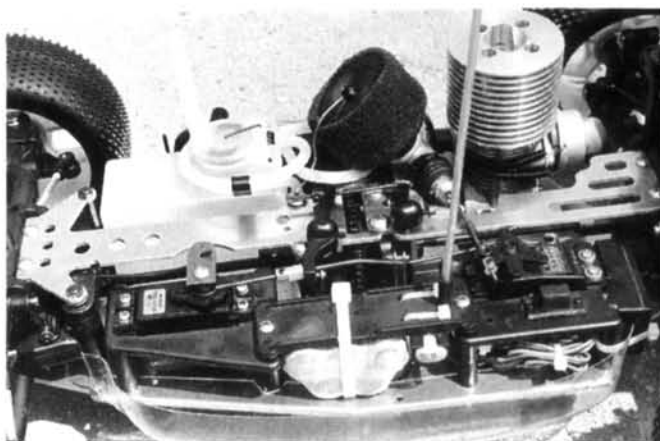
Unfortunately, the Pro Corsa comes only with a Serpent (on-road) crankshaft. I tried to get an off-road crank for it, but I didn't have any luck. So, I cut the pilot shaft off the end of the crank and used a clutch nut. The Probe's flywheel is very close to the carb, but it clears it. Without a doubt, it's the best flywheel I've seen in a kit car! It's a small point, but it just doesn't look like a stupid, fat Roman coin like those you see in most cars.

A nice pipe is also included with the kit. I had a little trouble fitting a manifold because the engine is on the right side of the center diff. I had a left-exiting bolt-on header, but I needed a right exit. I ended up using a spring-type 180-degree header that was made for a Pirate.

TESTING

The first test took place in July in New York. The air temp was about 100 degrees Fahrenheit and the blacktop temp was 129! I wanted to run it anyway, so I ran the engine nice and rich. I started at a setting that was so rich that the car wouldn't move at full throttle. I leaned it in half a turn and ran the tank to almost empty. At this point, the power was increasing, and the head temp was only 135 degrees. I ran four tankfuls through the engine before I leaned it any more. Then I leaned it slightly after each tankful and checked the temp. By the time I was up to 190 degrees, I had run half a gallon through the engine, and boy, did it run fast!

During the testing, there was some interference at full throttle: it was sticking on a split second too long. I've tried another receiver, a new battery, different crystals and moving the receiver, and it still glitches. Now, I think the glitching is caused by the throttle servo.



The plastic servo/battery tray is nice, but it doesn't provide a good place to mount the receiver. (It's mounted behind the throttle servo—1 inch from the rear A-arm.)

The car ran well over grass and dirt and on the pavement. I think the active wing works well. As I said before, I was a little wary about the diff cases, but they're taking a beating and hanging in there. I can't wait to take the Probe to the next gas race. Later!

*Here are the addresses of the companies mentioned in this article:

Flying Point; distributed by Racer's Choice, 6N258 Acacia Ln., P.O. Box 405, Medinah, IL 60157; (708) 980-4863.

OPS; distributed by Shamrock Competition Imports, P.O. Box 26247, New Orleans, LA 70186.

McCoy Racing, 1778 Albright Ave., Upland, CA 91786.

JR Remote Control; distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-0022.

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718; (714) 455-9888. ■



R/C DOCTOR

by DOUG MERTES

F1 Surgery

ANYONE WHO races in the Box Stock F1/Indy Class on a regular basis knows that it's a lot of fun to run these cars week after week. The competition is close; the cars have a very realistic appearance; their performance isn't too intimidating to novices; and the initial cost is low compared with that of cars in most other racing classes. Sometimes, however, parts can be a problem. Although the Kyosho* and Tamiya* cars are remarkably resilient, parts, e.g., bushings, diff balls, tires and rims, do wear out.

Recently, I had an interesting conversation with a frustrated racer/hobby-shop owner. He can't always provide his customers with the parts they need to keep their cars on the track. We talked about simple things such as tires, rims, motor mounts, axles, diff parts and bearings. This guy had even opened some of his unsold kits and given the parts to his customers so that they could continue to race!

By the end of last summer, I had managed to run my Kyosho Indy car for more than 2,500 laps, with minimal cash outlay. I only wore out one set of foam tires and a spur gear! The original nylon bushings were also getting sloppy, so I decided to move up to a full set of ball bearings. I was able to stay in Box Stock at my local track, because bearings are considered a maintenance item, not a performance upgrade.

Then came the hard part. Great Planes didn't have replacement foam donuts in stock. Spur gears were relatively expensive (\$7.50), and they were available in only one size. (One of the problems I'd had was getting the

gearing just right as the tires wore down.) The bearings were available by special order, but frankly, they were kind of pricey. What's a racer to do? I certainly didn't want to wait for the distributor to get foam donuts (also high-priced, at around \$20 a set).



The completed rear-end surgery, with almost everything from a 10LSS.

So, being a pack rat, I looked in my parts box for pieces that might fit, and guess what? I already had replacement pieces for virtually everything I needed, and I only had to spend two bucks to make everything fit perfectly!

THE REAR END

Because of gearing and ground clearance, I wanted rear tires with an outer diameter of around 60mm—larger than most of the 1/12-scale rubber that will fit the stock 37mm rims. A set of TRC*, rear, 1/12-scale green donuts on the kit's rims yielded a diameter of

around 58 to 59mm before truing, but trying to find an adapter for the tire truer that would fit F1 Kyosho or Tamiya rear rims also turned out to be a real problem at most tracks.

I pulled out the entire rear axle/diff/bushing/wheel assembly and set it aside (on the K cars, it's a gear diff; on most T cars, it's a ball diff). Careful measurement with my calipers told me that the rear axle's outer bushing diameter was 10mm. That's larger than the rear bearings on most pan cars, which are 1/4x3/8 inch, but I knew that Dan's R/C Stuff* made an adapter many years ago for the old Tamiya Road Wizard cars so that U.S.-size bearings could be used on the Tamiya pod.

Dan Moynihan told me that they still made the bearing spacer (no. 10024), so I ordered a set. Using my trusty Dremel tool and a no. 115 high-speed steel cutter bit, I *carefully* enlarged the rear bearing/bushing carriers in the plastic pod from 10mm to 11mm (on Tamiya cars, they're already 11mm), and I inserted the bearing spacer.

With these spacers, you can use standard 1/4x3/8-inch rear bearings, through which you can insert the rear axle and the diff setup of your choice. In my case, I already had several Associated* 10L and 10LSS axle and differential sets, so that's what I used. I started with a standard 10L-width graphite rear axle (part no. 8210), and used a 72-tooth, 48-pitch Kimbrough* spur gear, a BRP* diff-pinning kit and diff rings (no. 2110), Gator* Balls (no.

(Continued on page 62)



The front end. Associated pieces make finding replacement parts easy!

5601), Associated diff lube (no. 6636), a 10L/10LSS left-side hub (no. 8212) and a 10LSS diff-side hub (no. 8322) with the standard Associated diff thrust-cone assembly (no. 8213). For proper spacing, I used a 10LSS thrust spacer (no. 8321) on the diff side, and a small, 1/4-inch axle washer on the left side. It's not exactly right, but it's pretty close to centered.

If you don't have a standard-width 10L axle in your box, try an Irrgang Racing Service* fiberglass/polyester axle (no. IRS101). It resists cracking and splitting; it's already pinned; and, at \$19.95, it's a little less expensive. Everything else comes off a 10LSS.

I mounted a set of green compound Jaco* donuts on TRC NASCAR graphite composite rims that were left over from my oval racing days. I still think they're the most realistic-looking rims on the market, and they're durable, too! On the tire machine, I trued them down to 60mm and narrowed them to 1 1/2 inches, so that the rear track (width) remained the same as stock. I didn't want anybody crying foul play on this conversion!

THE FRONT END

Up front, I removed the original kingpins and the steering blocks, the steering linkage, the springs and the E-clips. Then, I reamed the kingpin holes in the steering arms to accept the 1/8-inch kingpins (no. 4123) from an old-style Associated 10L/10LSS front end. I had several sets of these, because I've converted all my 10L cars to the new, no. 8400 front end. I also used old-style 10L steering blocks (no. 3211) and long front springs from the new front end. You can use the shorter, old-style springs if you want to, but you'll have to use a couple of metal or nylon spacers to take up the slack. Put them *on top* of the steering blocks, and use the same number/thickness on each side, or your front end will act really weird. You could also use the short springs and spacers as a front ride-height adjustment by putting the spacers *under* the steering blocks to lower a chassis that has tall tires.

I haven't tried the new, Associated, in-line, steering blocks. In theory, they provide more front-end steering, and

it's the same design as the Kyosho car originally had.

I also used a set of C&M Cobra* front axles (no. 7540) with nuts instead of the dreaded E-clips. Hate them E-clips! Bolink* makes a very good set of front axles (no. 5364) with 5-40 nuts that would also fit.

This allowed me to use any 1/10-scale front tire/rim combination as well as standard 1/4x3/16-inch bearings for American pan cars. (I also had them in the toolbox. You're right; it's a "deeeeeeep" toolbox!) I chose a set of TRC NASCAR graphite front rims to match the rears, but almost any set you have will fit. If you prefer, you

spent \$2. I can also easily change my spur gear when it gets badly nicked, or when I want gearing that's more on target. When these tires wear out, I can use 1/10-scale donuts, which are inexpensive and easy to obtain.

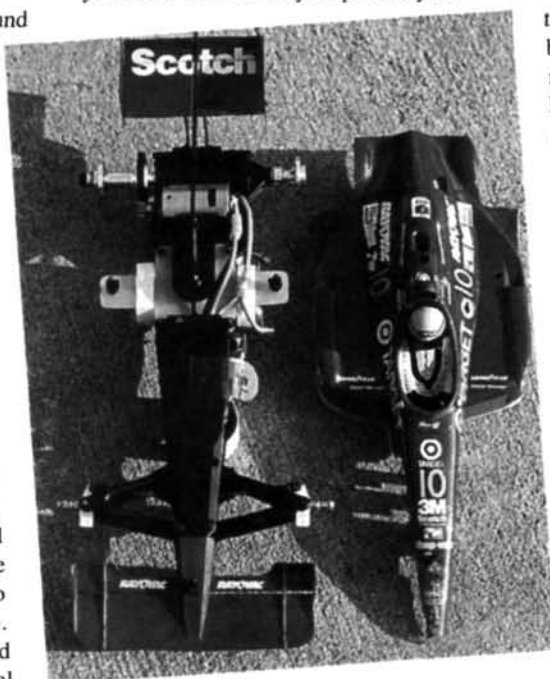
My car still looks scale. If I lose a bearing or a diff ball, or if I ruin a spur or a rim, I already have a replacement, or I can buy one at virtually any hobby shop or racetrack. The rims fit most tire-truing machines, so I can repair or re-shoe them easily. (Most shops can't do much for Tamiya rear rims without a special adapter.)

OK, so now I've gone to a lot of trouble, but is my car any faster because of all this? Well...no, not really. That wasn't the idea. Remember, these aren't supposed to be hi-zoot, expensive racing cars; they're supposed to be *fun*! The purpose behind all of this work is to make the car *last* longer and *run* longer without making the driver pay more.

I suppose an argument could be made that being able to really dial in the gearing or use different tire compounds would make a fast guy faster, but it hasn't done anything for me yet in terms of speed or lap times. Hey, who said I was fast to begin with? I ran the car with the original equipment setup, and then I backed it up with the new parts on it. The lap times were virtually identical: 40 laps in 10 minutes. On the

other hand, I'm not as concerned about replacing parts during a race, because I know that some of the stuff I have that fits my regular 1/10-scale cars will now work on my F1 car.

If you were just starting out in F1/Indy on carpet or pavement, and you didn't already have the parts for this conversion, would you have a hard time justifying all this work and expense? After all, the Tamiya and Kyosho pieces are really pretty good: the diffs are smooth, the rims are nice, and the quality of the donuts is consistently high. Frankly, I wouldn't do this to a new car; there's no need. I just happened to have everything I needed to make it work.



Voilà! It all looks like original equipment. Only you know the truth!

could use BBS rims or Bolink FastTrack rims for a realistic look. The chrome-plated rims that are still available from Associated and Pro-Line would also work.

I mounted a set of Jaco blue-foam donuts and trued them down to 58mm on the tire machine—an easy task. Now my ride height was just right: the chassis was far enough off the carpet to satisfy the track requirements, and I was satisfied with the amount of front to rear stagger.

THE BOTTOM LINE

So, what's the bottom line? I used a lot of parts that I already had in my toolbox (I *love* that part!), and I only

(Continued on page 118)



'94 CATALOGUE COLLECTION

The INSIDE LINE



Radio Controlled Racing Products
(301) 854-2701

INSIDE LINE

Inside Line manufactures aluminum split-axle front ends, super-light hubs, sway-

bar kits and more—including a new line of gas-car accessories. Send \$2 and a legal-size SASE to Inside Line, 12859 Rte. 108, Highland, MD 20777.

KYOSHO USA

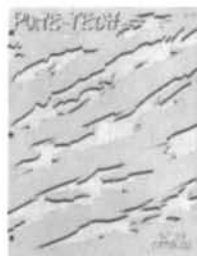
From the World Champion Inferno to the famous Concept helicopter series, Kyosho USA's 12-page mini catalogue offers a tempting look at this manufacturer's cars, trucks, airplanes, helicopters, boats and more—with specs, key features and lots of glossy color photos. Send \$1 to Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826.



KYOSHO USA
WORLD'S FINEST RADIO CONTROLLED MODELS

PURE TECH RACING PRODUCTS

Pure-Tech manufactures an entire line of high-quality battery straps for virtually every possible cell configuration, so you'll never again have to fuss with strapping tape to hold your battery packs. For the latest catalogue of these and other Pure-Tech products, write to 1611-A So. Melrose Dr. #180, Vista, CA 92083; or call (619) 598-4181.



HOBBY WAREHOUSE

This extensive Hobby Warehouse catalogue contains pictures and descriptions of the most popular items in the R/C industry. It costs \$2.99 (free with an order). Hobby Warehouse of Sacramento, 8950 Osage Ave., Sacramento, CA 95828; (916) 381-7588; fax (916) 381-7589.



PRO-LINE

Pro-Line makes tires that win races—plain and simple. From the original mini-pins to the new Worlds' Stubbies, Pro-Line has you covered on all four corners. For their latest catalogue, which also shows all their bodies and accessories, send \$2 to Pro-Line, P.O. Box 456, Beaumont, CA 92223.



TRINITY

Trinity's latest catalogue includes their complete line of car kits, car parts, motors, batteries, tires, accessories and all their Speedworks, Magic and Point Blank lines. Send \$5 to Trinity Products Inc., 1901 E. Linden Ave., #8, Linden, NJ 07036.





JR

Packed with photos, charts and graphs, JR's free, 28-page servo guide reviews the entire JR servo line. It includes complete

information on specifications, applications and prices for every JR servo. Call or write to Horizon Service Center, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

BOLINK R/C CARS

The Bolink R/C Cars catalogue

includes: their '94 catalogue; a price sheet that lists their line of fine R/C cars and accessories; a separate car kit catalogue; a bumper sticker; and a Bolink R/C "collector card." Just send \$3 to Bolink R/C Cars, 420 Hosea Rd., Lawrenceville, GA 30245; (404) 963-0252; fax (404) 963-7334.



MRP

Try something else! MRP offers a complete line of high-performance R/C electric and gas boats, accessories and replacement parts. For their latest catalogue, contact MRP, 201 West Lincoln St., Banning, CA 92270; (909) 849-1761.

THORP MFG.

Makers of some of the finest gears and tools on the market, Thorp can put you in the winners'

circle in no time! For their catalogue, send \$2 to Thorp Mfg. Inc., 4054 East Mission Blvd., Pomona, CA 91766; (909) 622-6508, fax (909) 622-2947.



SCHUMACHER

Schumacher's comprehensive, fully illustrated catalogue features off-road buggies and trucks and on-road gas cars. Send \$2 to Schumacher Inc., 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634.



HITEC

Hitec's catalogue includes R/C transmitters, servos, servo accessories, speed controllers, charging equipment and ARF kits. Send \$2 to Hitec RCD Inc., 10729 Wheatlands Ave. #C, Santee, CA 92071.



PEAK PERFORMANCE

Check out the Peak Performance line of modified and stock motors and accessories! Also included is a complete list



of Team Orion matched batteries from Switzerland; they're distributed exclusively by Peak Performance. Send a self-

addressed envelope with 52 cents postage (or two 29-cent stamps) to Peak Performance, 1362 East Edinger, Unit B, Santa Ana, CA 92705; (714) 667-6865; fax (714) 667-0858.

KYOSHO '93-'94 CATALOGUE AND HANDBOOK

An in-depth guide to their entire lineup of R/C models and model accessories, Kyosho's '93-'94 catalogue and handbook also serves as a valuable R/C primer. Its 158 full-color pages provide background information that every modeler should know. Send \$7 to Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826.



TAMIYA

Tamiya's latest catalogue is a full-color showcase that includes 1/10 and 1/12 scale; 2WD and 4WD; on road and off road; buggies and trucks; 1/4- and 1/24-scale Tamtech F1 and racing cars; 1/6-scale R/C tanks and more! Send \$7.50 to Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656; (714) 362-2240; fax (714) 362-2250.



ACE HARDWARE HOBBIES

Ace carries kits, spare parts and accessories for all the popular cars. For their latest, 50-page catalogue, send \$5 to Ace Hardware Hobbies, 1863 El Camino Real, Burlingame, CA 94010; (415) 697-6099; fax (415) 697-6801.



ASSOCIATED

Associated offers six free catalogues that cover their extensive line of R/C products: 1/10-scale off road, 1/10-scale on road, 1/12-scale on road, 1/10-scale truck, 1/8-scale gas and 1/10-scale tires and wheels. Contact Associated at 3585 Cadillac Ave., Costa Mesa, CA 92626; fax (714) 850-1744.



TAMIYA

Tamiya's "Radio Control Guide Book" is devoted to R/C vehicles, parts, hop-up options and polycarbonate paint and accessories. A valuable reference guide, it also contains information on driving techniques, competitive racing, vehicle maintenance and troubleshooting, and it tells how to select and assemble kits. Send \$9 to Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656; (714) 362-2240; fax (714) 362-2250.



HOLESHOT RACING PRODUCTS

Holeshot's latest catalogue includes such items as its high-performance heat sinks, rack-and-pinion steering kits, front-end alignment boards, Pro balancers and high-performance racing accessories. Send \$1.75 to Holeshot Racing Products, P.O. Box 630, Canton, MA 02021; (508) 587-0663.



BRP INC.

BRP offers a range of products for on- and off-road enthusiasts—everything from motors to wings, wire, bodies and diff parts. Send \$2 to BRP Inc., 1575 Lowell St., Elyria, OH 44035.

PARAGON RACING PRODUCTS

Paragon Racing Products offers all the high-quality parts and accessories you need to go fast. This eight-page color catalogue comes with holographic Paragon decals and a product sheet that will keep you up-to-date on all their latest goodies. Send \$2 to Paragon Racing Products, 690 Industrial Circle S., Shakopee, MN 55379; (612) 496-0091.



DREMEL

Dremel's latest catalogue is free. Write to Dremel, 4915 21st St., Racine, WI 53406, or call (414) 554-1390; fax (414) 554-7654.

DAHM'S

Dahm's '94 catalogue features their high-quality Lexan racing bodies for 1/12-, 1/10- and 1/8-scale gas and electric R/C vehicles. The catalogue includes great photos and a best-body-fit list. Send \$2 (for catalogue only), or \$4 (for catalogue and decal sheet) to Dahm's Racing Bodies, P.O. Box 360, Cotati, CA 94931; (707) 792-1316; fax (707) 792-0137.



TEAM LOSI

Team Losi's complete catalogue includes all Team Losi and Jammin' products, apparel and price lists. Send \$1 to Team Losi, 13848 Magnolia, Chino, CA 91710, or call (909) 465-9400.

NOVAK

A recognized leader in R/C electronics, Novak is on the cutting edge with its newest high-frequency speed controllers and receivers. From the low-cost 410-M5 to the awesome 410-HPc, Novak has covered all

the bases. For their free catalogue, write to Novak Electronics Inc., 18910 Teller Ave., Irvine, CA 92715; (714) 833-8873; (714) 833-1631.



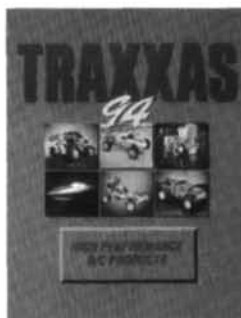
C&M MFG.

Manufacturers of the successful line of Cobra race-cars, C&M also offers motors, battery dischargers, tire truers and other racer-oriented equipment. For their latest catalogue and a set of decals, send \$3 to C&M Mfg., P.O. Box 701-353, West Valley City, UT 84170; (801) 974-5757; fax (801) 974-0869.



A&L

A&L offers truck kits, bodies, high-performance accessories, suspension and steering kits for most popular cars and trucks—and more! For their 1994 catalogue, send \$2 to A&L Mfg., P.O. Box 2115, Corona, CA 91718; (909) 735-5249.



TRAXXAS

The new, 12-page, 1994 Traxxas catalogue fully covers their entire product line, including electric, nitro power and boats. Send \$1 to Traxxas Corp., 12150 Shiloh Rd., Dallas, TX 75228; (214) 613-3300.

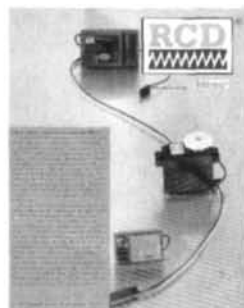
RPM

RPM manufactures parts to fit the most popular cars on the R/C market. They make suspension arms and blocks, hub carriers, shock accessories and much more! For a complete catalogue and decals, send \$2 to RPM, 14978 Sierra Bonita Ln., Chino, CA 91710.



PARMA/PSE

Write today for Parma/PSE's 1994 R/C poster and price list! The beautiful, four-color poster shows Parma and PSE's best-selling R/C bodies; and on the back of the poster, there's a complete list of Parma/PSE bodies, tires, batteries and accessories. Send \$3 to Parma Intl. Inc., 13927 Progress Pky., North Royalton, OH 44133.



HITEC RCD

This catalogue includes Hitec RCD's full line of after-market

receivers, servos and servo packs, and accessories. For a copy, send \$2 to Hitec RCD Inc., 10729 Wheatlands Ave. #C, Santee, CA 92071.



MIP

MIP manufactures after-market high-performance products for Associated and Losi cars and trucks. For their latest catalogue, send \$1 to MIP, 746 E. Edna Place, Covina, CA 91723.



RACER'S CHOICE

This exciting catalogue contains 14 pages that describe this company's entire electric- and gas-car line. There's special information on the BMT 933—the three-time World Champion 1/8-scale on-road gas car—plus more! Send a 58-cent postage stamp to Racer's Choice, P.O. Box 405, Medinah, IL 60157.

Letter on the INSIDE

by TIM MARTIN

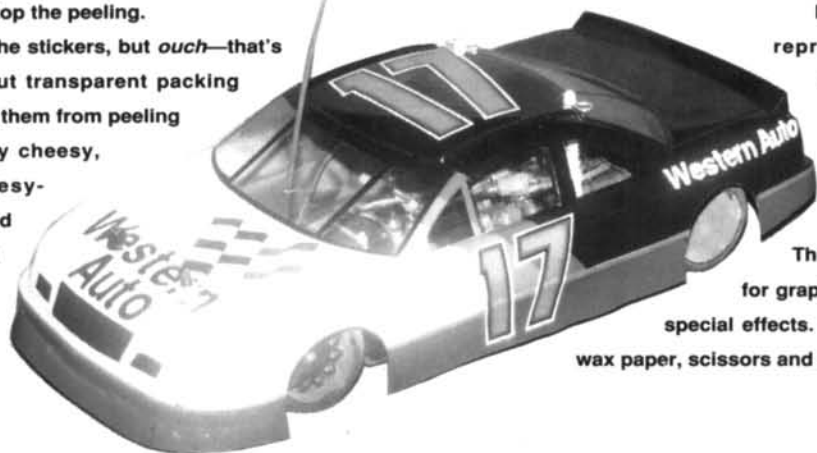
FINISHING BODIES WITH cool graphics is great, but, sometimes, you want to add special wording, or recreate your favorite NASCAR driver's paint scheme. You don't really want to put stickers on the outside of your car because you know that they'll start to peel off after the first couple of crashes. And when that happens, there's not much you can do to stop the peeling.

Sure, you can replace the stickers, but *ouch*—that's expensive! You could put transparent packing tape over them to prevent them from peeling off, but this looks pretty cheesy, and who wants a cheesy-lookin' body? You could also buy stickers that go on the *inside* of your car's body; select or create some artwork and

send it to a company that makes stickers or the masking for a paint job; or buy some liquid mask and try to cut the letters out of it. Each of these works, but each has its limitations and problems. The procedure I'm going to explain is the least expensive solution, and with a little practice, you'll be able to make an awesome-looking body.

I'll explain only how to reproduce letters and place them on the car in a straight line. (For other painting tips, check out articles in previous issues of *Car Action*.)

This procedure will also work for graphics and letters with funky special effects. You'll need masking tape, wax paper, scissors and an X-Acto knife.



1 CREATE YOUR ARTWORK

I created a copy of the Western Auto NASCAR body and did the artwork on my computer. If you don't have a computer and you don't have a friend who can create artwork on his or her computer, try to draw it freehand. If you do this, make sure that the artwork looks *exactly* as you want it to; you won't be

able to improve it after this stage! If you want to distort some letters for a special effect, do it now.

JUST TRY TO SCUFF 'EM OFF!



2 TRIM AND MOUNT THE ARTWORK

Because the letters will be painted on the inside of the body, they must be reversed so that they can be read from the outside. Here's how to do it:

1. Tear off a piece of wax paper that's larger than your lettering will be.
2. Place a piece of masking tape (also larger than the lettering) on one side of the wax paper. I used 2-inch-wide masking tape, but if this isn't wide enough, you can lay several pieces of tape next to one another to make one large piece. (If you do this, overlap the pieces of tape $\frac{1}{8}$ to $\frac{1}{4}$ inch.)
3. Turn the wax paper over, and place the lettering on the other side. Make sure that the tape on the opposite side surrounds the lettering. If it doesn't, add more tape.



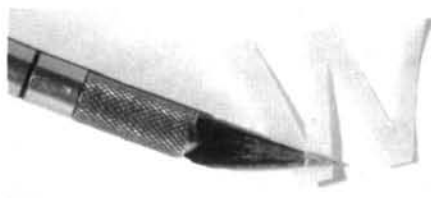
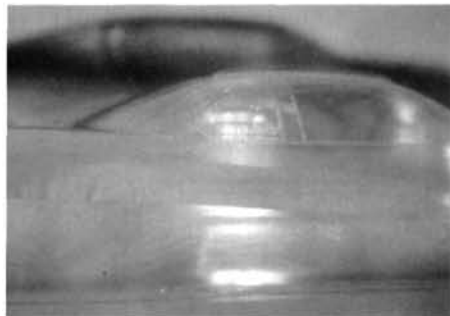
3 TAPE DOWN THE LETTERING

It's OK if you've trimmed your paper close, as I did, and the masking tape covers some of the lettering; you'll be able to see it through the tape. Be sure to tape all four sides of the lettering to keep it securely fastened to the wax paper.



4 CUT OUT THE LETTERS

Cut out the holes in the letters before you cut anything else. (In this example, I cut out the holes in the e's first.) If you don't do this first, the letters won't be attached to the wax paper when you do; then you'll have to cut them out freehand, and this can be very difficult. When cutting, to keep the lettering securely fastened to the wax paper, work from one end to the other (as shown). Cut the letters as closely and as accurately as possible.



5 WHERE DOES IT GO?

After you've cut everything out, determine how and where it will be placed on the body. Because my body required a straight line of lettering over the rear fender, I put a piece of masking tape on the outside of it. This served as a guideline to ensure that I placed the letters in a straight line on the inside of the body.

6 REMOVE THE BACKING

Before you position the letters, you must remove the wax paper. Slide a sharp X-Acto blade through the wax paper (but not the masking tape) to the edge of the lettering to separate a small piece of wax paper from the tape. Then place your fingernail between the tape and the wax paper, and, using the knife, pull the wax paper off the tape.



7 POSITION THE LETTERS

Place the letters on the inside of the body using the tape on the outside as a guide. Be sure that you're applying the letters correctly so that you can read them from the outside. Continue until you have all the letters and artwork masked, so that you can paint your body as you normally do.

When you've finished, you'll have an awesome, long-lasting body design.

TRINITY®

In Yer Full Face

In stock-class racing, one of the most important things is to have a fast motor. One of the most critical parts in making a stock motor fast is the brushes. It's likewise **very important** for the brushes to be fully broken in. The process of breaking in brushes can be brutal on the comm, however. Even with the trick brushes that are available today, you must run the motor enough to ensure that the brushes are fully seated.

This is why we designed our new RC-4380 full hard brush with its **totally new** serrated face. The running surface of this brush is made up of tiny v-grooves. The tips of the grooves wear in very quickly. At the same time they are wearing in, the grooves are getting wider and are running on a fresh new comm surface. This results in virtually instant break in without the comm damage you get from the long break-in time required using regular brushes.

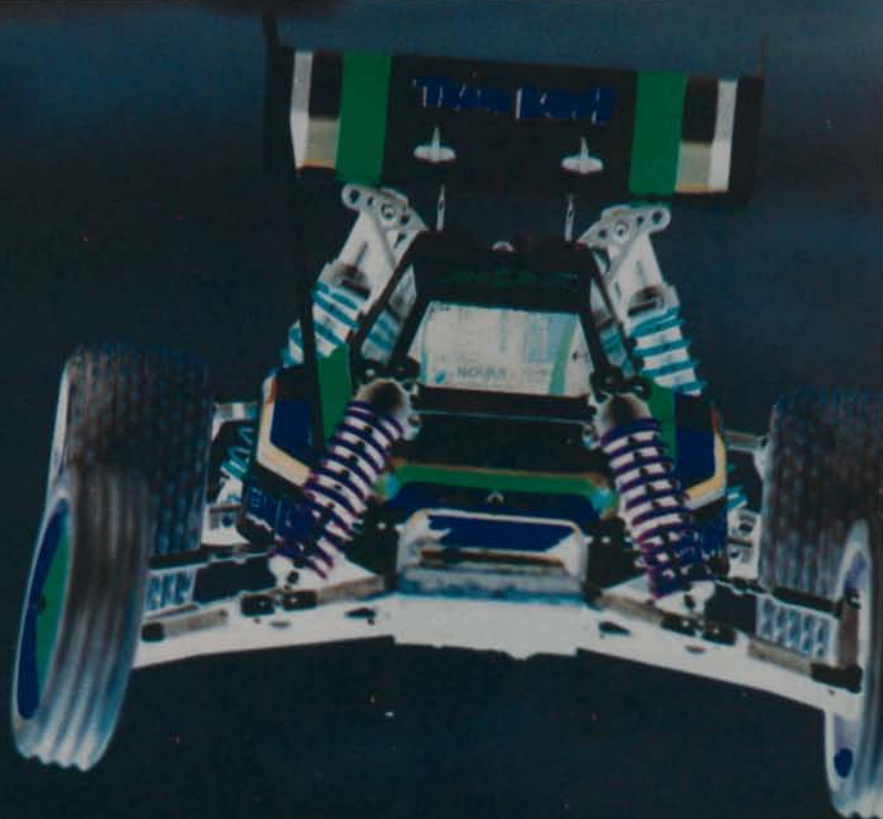
The RC-4380 brush should really help when comm cutting isn't allowed, or with handout motors, where you need to get your motor running really fast as quickly as possible. Simply install them like any ordinary brush. Put on a few drops of RC-4040 Brush & Comm Drops, then run the motor for about 30 seconds. That's all there is to it, and you're ready to race! The RC-4380 brush uses our very popular RC-4038 compound and has a single shunt with an eyelet attached. Use them with our RC-4028 medium or RC-4033 heavy springs.

This brush works really well in modified motors, too. The v-grooves reduce the contact area, therefore lowering friction, while still giving full wrap against the comm.

**Put 'm in. Go fast.
No holes required!**

Until next month,
Neal McCurdy
Trinity Team Manager

ADVERTISEMENT



X TEAM LOSI

PHOTOS BY JOHN HOWELL

DOUBLE

by FRANK MASI

"Even I can win with this car!"

Gil Losi Sr.'s boast might be a slight exaggeration, but the Team Losi president's point is that he thinks that his company's new 1/10-scale off-road racer, the Double-X, is inherently faster and easier to tune and maintain than any other—a bold claim indeed.

Losi sources say that the Double-X is the result of nearly two years of intensive R&D; it's not a rehash of JRX-Pro SE parts. The Double-X's design began with a blank sheet of paper and Gil Losi Jr.'s dream to build the ultimate 2WD car. Sophisticated CAD, stress-analysis and motion-simulation computer programs—supplemented with exhaustive on-track testing—aided the Losi engineers in their quest, and the result is quite impressive. How much so? Read on.

A MODULAR CHASSIS

The best way to describe the Double-X is to say that it's "modular."

There's a main, middle chassis piece, to which the front and rear suspensions are attached. It's molded of Losi's Stiffezell

material, and its sides are raised (contrary to popular opinion that its middle is lowered!) to provide additional ground clearance when the car experiences chassis roll

(the leaning of the chassis that occurs when the car corners). The raised sides also come in handy when the car bottoms out after a jump; there's less area to

rub the ground and slow the car. Also, there are no exposed screw heads on the chassis's underside to snag the ground and become packed with dirt.

"Even I could win with

N T E N S I T Y



this car!"



DOUBLE-X

The batteries are placed within the chassis's middle, channeled portion and are secured with hook-and-loop straps, which are much lighter than conventional battery retainers. The channel is a bit longer than a 6-cell pack, so you can slide the battery forward for more steering, or rearward for increased rear traction. Because the battery pack can account for as much as one-third the car's weight, its placement is a critical adjustment. Losi supplies a rigid foam square to fill the remaining space in the channel.

For additional weight savings, an antenna mount is molded into the chassis, and there's plenty of room on the chassis's sides to mount your ESC and receiver in a flat position.

The underside of the main chassis has no exposed screw heads to snag on the ground or become packed with dirt.

SUSPENDED ANIMATION

According to Jack Johnson, a car that has longer arms handles in a more "forgiving" fashion because its wheel track (the distance between the left and right tires) stays more constant as its suspension works. To explain further: if you compare a car that has long arms with one that has shorter arms, you'll notice that to achieve the same amount of suspension travel, the short arms have to pivot

much more than long ones. This drastically changes not only the car's track, but also the speed at which the shocks are compressed. Naturally, the Double-X has super-long front arms that are molded of Losi's* rigid Stiffezell material.



Setting Up the Double-X

I set up my Double-X with help from the Losi racing team. This setup is considered the "standard" for the Double-X. It should work well on most tracks.

- **Front shocks.** Use 56 pistons, and fill the shocks with 350 Silitec oil. Mount the shocks in the third hole on the shock tower and in the middle hole in the arm. Use Green springs.

- **Rear shocks.** Again, use 56 pistons. Fill the rear shocks with 350 Silitec oil. Mount the shocks in the third hole on the shock tower, and in the outermost hole in the arm. Use Red springs.

- **Camber-rod position.** Use the positions that are suggested in the instructions: up front, attach the camber rod to the outermost hole in the shock tower. For the rear, use hole no. 2 on the bulkhead, and use hole no. 1 on the rear hub carrier. According to Losi, using these camber-rod positions will provide the most consistent handling.

To find the best camber-rod positions, Losi used a computer program that simulated the motion of the car's suspension. This program charted the camber change based on a theoretical rod placement. The point at which handling became inconsistent was shown as a "spike" on the chart. The final camber-rod positions were chosen to minimize this "spike."

- **Toe-in and camber.** Set the front tires to have about 1 degree of toe-in per side. Up front, adjust the tires so that they have approximately 2 to 3 degrees of negative camber (the tops of the tires lean inward). In the rear, set the tires to have about 2 degrees of negative camber. (Note: adjust all settings with the car at the proper ride height.)

- **Ride height.** Set the front end so that the suspension arms are slightly above level. The rear should be a compromise between the arms being level and the drive shafts being level.

These are just basic setups to get you started on the right foot. Track conditions vary quite a lot, so you'll have to adjust your setups to compensate, but you shouldn't have to stray far from this standard setup.

To accommodate the long front arms, Losi made a bulkhead that's narrower than that of the old Pro SE. This bulkhead is hinged to the main chassis so that it can be easily swung out of the way if you need to get at the steering mechanism or the inner camber-link mounts. Losi originally planned to offer the car with an adjustable

DOUBLE-X

kick-up angle, but they killed the idea when they began testing; 30 degrees always seemed to work best, and that's what the Double-X comes with. A thick, "bridged" fiberglass front shock tower is mounted on the bulkhead and offers a choice of four shock-mounting holes and four holes for the inner camber rod. Losi's Hard Body shocks are used up front.

The spindles, or steering arms, are

designed to position the kingpin directly in the center of the new, front "disk" wheels. This eliminates "jacking"—the pendulum action of the chassis that occurs when the front wheels are forced to rotate around an offset kingpin. The Double-X's wheel and kingpin share a common axis, so jacking is minimal. Because the wheels are greatly offset, the front wheel bearings had to be incorporated in the steering arms. The wheels are simply bolted directly onto the front axles.

Are you tired of losing E-clips and subsequently losing inner suspension-arm hinge pins? Losi has solved this problem on the Double-X with a neat mini-bumper that "captures" the hinge pins to prevent them from being dislodged if an E-clip falls off. The bumper also protects the front bulkhead hinge.



The steering arms hold the front wheel bearings so that the steering kingpin is exactly at the wheel's center. Steering and stability are improved.

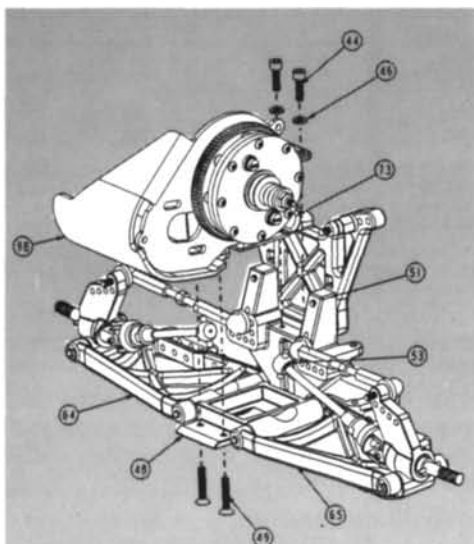
LOSI STEERS YOU RIGHT

Much thought was put into the Double-X's steering setup. It's a twin-bellcrank affair that has a servo-saver in its left bellcrank.

An adjustable drag link allows you set the amount of Ackerman—the difference between the angles of the inner and outer wheels as the car corners.

Johnson explained that computer design was used to shape the servo-saver halves so that they have a greater contact area for less steering "slop" when they're rotated from their "keyed" position. An adjustable drag link allows you to set the amount of Ackerman—the difference between the angles of the inner and outer wheels as the car corners. Out of the box, the Double-X's steering rides on bushings, although Losi offers an optional bearing kit for even smoother operation.

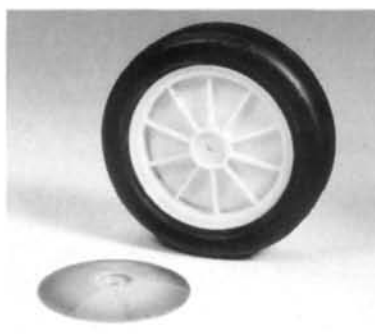
I hate mounting the steering servos. I can never find the right posts, or a steering arm and linkage of the correct size. On the Double-X, Losi has done the hard parts for



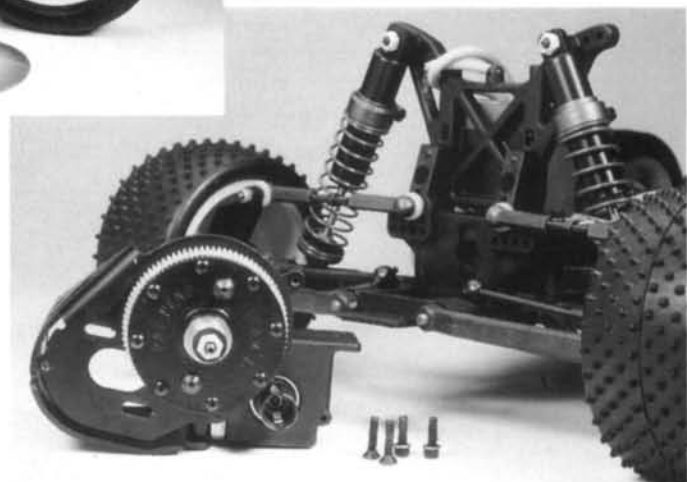
Look Out, Tamiya

The Double-X's 41-page owner's manual breaks new ground with its well-written text and its incredibly detailed, computer-generated assembly illustrations. Along with full-size hardware legends that help you to choose the correct screw, nut, or washer for each building step, the Double-X manual contains special "bull's-eye" icons that denote crucial assembly notes. The experts at Losi have also thrown in a bunch of their own special building tips and assembly shortcuts for certain steps. You'll recognize these tips by their little flag icons.

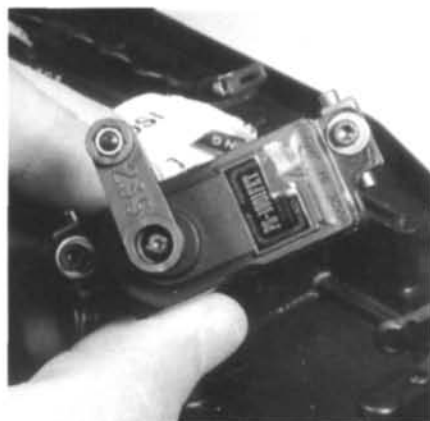
Other welcome sights in the Double-X manual include a cool glossary of R/C racing terms—hey, now I know what Ackerman is!—and a very detailed tuning guide to help you dial in to any track. Of course, a full spare-parts list is part of the package. We've always thought that no one could match the high quality of Tamiya or Kyosho's instruction manuals, but the folks at Losi have outdone themselves this time. If only they could tell me how to set the clock in my VCR!



All-new front wheels that have the same "hub-cap" design as the rears are standard on the Double-X.



Remove four screws, and the transmission pops right out. To increase chassis strength, the tranny case fits into a receptacle in the rear suspension pivot support.



Losi's innovative universal steering posts make servo installation a snap. The included servo arm is a nice touch, but I had to take some material off the servo case to provide enough clearance.

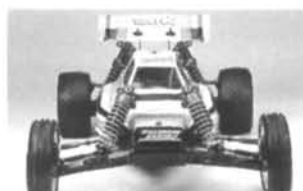
you by including universal servo-mounting posts and an assortment of servo arms. Apparently, steering arms are more important than I had imagined; the linkage geometry must be correct for consistent left-to-right steering action. A handy chart in the instruction manual tells you which post position and which servo arm should be used with your particular servo. I used a KO Propo* PS1001 servo in my Double-X, but first I had to grind the lower set of mounting "ears" off the servo case so that it would fit in the chassis' channel. I also had to remove a little material from the front of the case to provide adequate clearance for the left steering bellcrank.

HIND QUARTERS

The Double-X's "modular" theme is carried over to its rear-end design. A molded plate, which Losi refers to as a rear pivot support, is bolted to the rear of the main chassis. The rear shock tower/bulkhead, suspension arms and transmission are attached to this plate. Four screws secure the tranny to the car; remove them and the tranny pops out. Take out another six screws, and the car's entire rear end comes off. Talk about easy maintenance!

The transmission is a reconfigured version of Losi's "Double-X Retrofit" box for the Pro SE. The two boxes share most internal parts, but the one on the Double-X (the car, not the tranny) "leans" backward to provide a lower center of gravity, and its case is much narrower. A new top shaft places the slipper clutch and Hydra Drive (included) closer to the motor

TEAM LOSI DOUBLE-X



Scale.....1/10
Price.....\$339.95

Dimensions
Overall length.....15 in.
Wheelbase.....10.625 in.
Front width.....9.625 in.
Rear width.....9.875 in.

WEIGHT:
Gross (w/batteries).....3 lb., 8.5 oz.

CHASSIS
Type.....Three-piece modular
Material.....Molded composite "Stiffzell"

DRIVE TRAIN
Type.....Sealed gear drive
(2.19:1 reduction)
Primary.....Pinion/spur
(88-tooth spur incl.)
Transmission.....Universal-joint/dogbones
Differential(s).....Racing-ball diff
Slipper clutch.....Friction w/Hydra Drive
Bearings/bushings.....Sealed
ball bearings

HITS

• Easy to work on. • Fantastic instructions. • Incredible handling, especially on fast, bumpy tracks. • Excellent factory support.

MISSES

• Costs more than the car it replaces (the JRX-Pro SE). • Uhhh, can't seat four comfortably?

SUSPENSION

F/R: Type.....Independent
A-arm w/adjustable
camber link
Damping.....Oil-filled, coil-over shocks

WHEELS:

Front: Type....."XX" offset w/dirt shield
Dimensions (DxW).....2.1x0.75 in.
Rear: Type.....22 Caliber w/dirt shield
Dimensions (DxW).....2.2x1.625 in.

Tires

Front.....A-7201 HT Ribbed
Rear.....A-7364 HT IFMAR Stud

ELECTRICS

Motor, battery, ESC.....Not included

OPTIONS TESTED:

KO Propo PS1001 servo, Novak 410-M1c ESC and NER-3FM mini-receiver, Trinity Pushed Sanyo SCRC pack, Trinity EX-Tech 12-turn, quad-wind modified motor, Robinson Racing* 18-tooth Silencer pinion gear.

plate; this is kicked up in the back for improved ground clearance, and it also stiffens the rear of the car.



Removing the rear suspension/transmission assembly is as easy as taking out six screws. This is a very easy car to work on!

ARMED AND DANGEROUS

Long suspension arms that are molded of Stiffzell are attached to the rear pivot-support plate. Because the arm mounts are molded into the pivot support, suspension-arm alignment (very critical to proper handling) is always correct. The kit's pivot-support gives the arms 4 degrees of anti-squat, but it doesn't give any rear toe-in (an optional support with 2 degrees of anti-squat is available). Toe-in is provided by the rear hub carriers (3½ degrees per side), so you have to pay attention when you build this section of the car. One carrier is for the left side, and one is for the right.

Also, be sure to install the small steel washer between the arm and the rear of the arm mount. Losi

claims that because the arm pushes the car forward, this area

is subjected to a lot of drive force. A plastic-to-plastic connection here would cause too much friction. The steel washer frees suspension action, so there's less binding under acceleration.

TOWER OF POWER

The Double-X has a trick, molded rear shock tower that's actually stronger and lighter than a fiberglass tower of similar shape and size. To further reduce the car's weight, the shock tower has a built-in wing mount, so no tubes or separate mounts are needed. Long, Hard Body shocks with Losi's Red springs are attached to the tower. You can install your ESC to the chassis, but I like to keep the battery and motor leads short, so I mounted my

If the Double-X's user-friendly detailing doesn't win it legions of fans, then its stellar on-track performance surely will.

install a Novak NER-3FM receiver because of its lightness. Joel Johnson used Trinity power in his Double-X to TQ at the Worlds, so I followed suit; I popped a Trinity* pushed Sanyo SCRC pack into the chassis' battery channel, then I wired in an EX-Series, 12-turn quad-wind modified motor.

To me, the Double-X body looks like a variation on the old Pro SE body, but with raised sides to provide clearance for the electronics. It fits the chassis like a glove, so very little dirt should collect inside the car. The Double-X also comes with a new, larger wing that has taller side dams for more stability at higher speeds. (I guess that means this car is meant to go *really* fast!)

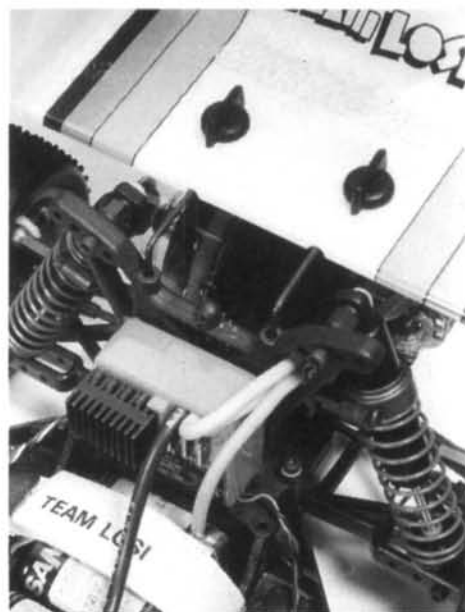
The kit-supplied tires (HT ribbed fronts and 2.2-inch HT IFMAR Studs rears) looked as if they would work well on the track at which I planned to do my testing, so I glued them to the "disk" wheels, charged the battery pack and headed out.

HOW'D IT WORK?

I tested the Double-X at R/C World's off-road track near our office in Connecticut. It has a lot of good, sandy dirt, but it can get torn up and become really bumpy

(especially when we've been doing our 1/8-scale buggy testing there!).

After setting the slipper/Hydra Drive, I climbed the drivers' stand for a few hot



A molded rear shock tower is stronger and lighter than a conventional fiberglass tower. To save even more weight, the wing mount is part of the shock tower.

laps. To sum up the Double-X, I'd call it the most stable car I've ever driven at this track. It bounced through the rutty corners, but it never lost its composure or showed the slightest hint of an impending traction roll. On the track, there's a large double jump that I can clear with the big, gas buggies, but I have difficulty when I attempt it with 1/10-scale cars. Man, the Double-X made 'em every lap, even if my approach wasn't perfect. (I'm sure that the heavy horsepower had something to do with this, too.)

TECHNOLOGY RULES

We've been hyping this car in the magazine for so long that I was sure that it would somehow fall short of our expectations, but after careful examination and testing, I think that I was wrong. With the Double-X, Team Losi has proved that using high-tech design and manufacturing processes isn't a waste of time. If the

Double-X's user-friendly detailing doesn't win it legions of fans, then its stellar on-track performance surely will. Losi has built the better mouse-trap.

**Here are the addresses of the companies that are mentioned in this article:*

Team Losi, 13848 Magnolia Ave., Chino, CA 91710; (909) 465-9400.

KO Propo, 25-10 Sendagi, 3-Chome, Bunkyo-ku, Tokyo, Japan.

Novak Electronics Inc., 18910 Teller Ave., Irvine, CA 92715; (714) 549-0875.

Airtronics Inc., 11 Autry, Irvine, CA 92718; (704) 830-8769.

Trinity Products Inc., 1901 E. Linden Ave., #8, Linden, NJ 07036; (908) 862-1705.

Robinson Racing Products, 4968 Meadowview Dr., Mariposa, CA 95338; (209) 966-2465. ■



A hinged front bulkhead allows you to swing the suspension out of the way for quick and easy maintenance.

Novak* 410-HPc high-frequency ESC against the shock tower. I'm sure that it will receive enough air flow to stay cool in this position, but, to be safe, I installed a set of heat sinks.

If you run on big, fast tracks, you might need the optional sway-bar kit, which includes bars of four thicknesses. Also, most of the molded Stiffezell parts will be offered in an even stiffer, lighter, graphite-plastic material as after-market pieces.

X-ACTING X-TRAS

To control the Double-X, I decided to use my Airtronics* Caliber radio because of its many functions and settings. Although there's enough room on the Double-X's chassis for the larger Airtronics receiver, I opted to



The reconfigured Double-X 'box features a lower center of gravity and a slimmer profile.

NEW FOR '94

The shipment is in!



KYOSHO Racing Karts

These gas-powered 1/4-scale Racing Karts come with a pull-start O.S. .10 FP-B engine, an aluminum-and-composite chassis, high-grip rubber tires with foam inserts, and an articulated driver. "What's that," you ask? It's a driver figure whose head and arms turn toward the direction in which the Kart is steered. Most of the radio gear is hidden from view, and this adds to the Kart's realism. A chain-drive system and a live rear axle also add a scale touch. It's pretty cool! Now, don't think of the typical 1/4-scale setup. The Kart is big, but not as big as, say, a 1/4-scale stock car. Remember, this is a scaled-down version of a racing kart, not a full-size car!



BOLINK Digger Dragster

Following the success of their Digger kit, Bolink has done it again; this time, with a dragster kit. The car is roughly based on the Digger, but it has a longer chassis. The car accepts all the standard Digger hop-ups, such as its ball differential and aluminum wheels.



We've just returned from the Chicago Radio Control Hobby Trade Association (RCHTA) show, where more new products were unveiled than at any other hobby show in the past few years. Cutting-edge equipment was released by not only electric but also gas manufacturers. So, let's take a look at what the new year has in store for us.



TEAM COBRA Probe 4000

This variable-rate battery training system allows you to set between 0 and 40 amps for battery discharging, and you can also set the cutoff voltage (where it stops). At the end of the cycle, the Probe 4000 gives you the batteries' run time and the average volts. You can use the system for single cells or for entire battery packs. The Probe 4000 is expected to sell for roughly \$225.

RACER'S CHOICE/FLYING POINT Jet Probe

There's a new contender in the 1/8-scale off-road war—the Flying Point Jet Probe. Distributed in the U.S. by Racer's Choice, the Jet Probe (held by Gary Otto of Racer's Choice) comes with three steel diff gears (Torsen diffs are optional); high-volume oil shocks; a purple-anodized aluminum chassis and Duraluminum upper radio tray; and a waterproof and dust-proof receiver case. Other features include a light engine flywheel, separate front and rear disk brakes and a dual-filter gas tank.



TRINITY Short Course EV10

This hot new car from Trinity is designed specifically for short course racing. The car's chassis is 3/4 inch shorter than stock, it has an adjustable wheelbase and it has special battery cutouts for a lower center of gravity. The chassis' design allows you to mount your electronics flat, and the nerf wings come with the kit. Look for more on this car soon.

NEW FOR '94

TAMIYA Off-Road Desert Trucks

New from Tamiya are these Mickey Thompson-type off-road trucks. Designed for the American market, the trucks—a Chevy (shown here) and a Ford—have the same type of chassis as Tamiya's Mercedes 190E on-road car. They're designated as off-road vehicles and, according to inside sources at Tamiya America, they'll be "popularly priced."



PARMA '29 Ford Roadster

This sharp-looking model (the '29 Ford, not Gary Pilla of Parma) is Parma's answer to getting into on-road in an inexpensive way. The car comes with a multi-piece body and mounting system and a three-piece interior. Other features include mounted-and-trued foam tires on chrome wheels, Parma's G-10 chassis, a 48-pitch spur gear, a steel axle, a battery tray and a hideaway Lexan antenna. The car lists for \$99, but you should be able to do even better at your hobby shop.



TRINITY Reflex Pro

The Reflex oval car returns to the public this year redesigned as the Reflex Pro. The Pro features a shorter, stiffer chassis to withstand the rigors of dirt-oval racing. The kit also comes with bi-level rear body mounts.



KYOSHO Outlaw Rampage Pro

Kyosho's new race truck—the Outlaw Rampage Pro—has a blue-anodized semi-bathtub-type chassis, front and rear double-wishbone long suspension arms, the SST-GP three-gear transmission with a slipper clutch, a 75cc fuel tank, and new front and rear tires. Also new on the truck are Kyosho's hard-anodized Ultimate shocks, which are redesigned versions of their popular Equalizer shocks. The kit will be available in two versions: a basic kit with bushings, Kyosho Black shocks and a pull-start O.S. CZ-R, and a race version with bearings and Ultimate shocks, but no engine.



ANDY'S R/C PRODUCTS '94 Ford Ranger Body

This sweet-looking stadium-truck body is narrower than most truck bodies. When your truck's suspension is fully compressed, its tires won't rub on the body. The tail is also shorter; this helps to prevent you from getting tied up with other trucks on the track. A clear body is listed at \$18.95, and one that has been custom-painted like the body shown in the photo lists at \$34.95.



YOKOMO RX-12

Long known for their excellence in 4WD off-road, Yokomo has now entered the gas-racing world with its RX-12 and RX-15 engines. According to the Yokomo people, the engines are available with or without pull-starters. Yokomo is currently trying to establish a good dealer network in the U.S. and is looking to export its entire product line, which includes not only 4WD off-road cars, but also on-road cars, engines and electronic devices.

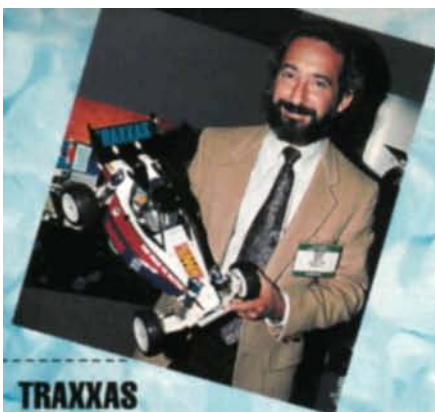
MUGEN Athlete

The Athlete is a completely new 1/8-scale buggy from Mugen. It has lighter, smaller differentials, fully adjustable upper arm links, a repositioned center of gravity and a newly designed center drive shaft, which is perfectly aligned with the chassis' center line. The Athlete also features new, quicker, more responsive steering, an enclosed receiver box and highly adjustable twin brakes. The 1/8-scale Toyota pickup (shown on the left) has many of the same features as Mugen's winning Super Sport '93 buggy.



HORIZON Apex 10

The Apex 10 marks Horizon's entrance to the on-road gas scene. The car has a beam-style front end and a rear T-bar, which is stabilized by a sprung shock absorber. Its other hot features include a quick-fill gas tank, an aluminum rear pod, a ball diff, mounted foam tires, a roll bar and turnbuckles. The clutch bell accepts any standard-pitch pinion, so you don't have to buy expensive clutch bells. The kit is available with or without Horizon's new TNT .12 engine.



TRAXXAS Nitro Buggy

Based on the popular Traxxas Nitro Hawk truck, this all-new Nitro Buggy (held by Traxxas' David Katz) incorporates an Image .12 pull-start engine, a new stylish buggy body and many other winning features. We watched Traxxas demonstrate the buggy on a dirt track at the show; this thing hauls!



Athlete

1/10 Scale Off-Road Buggy



SCHUMACHER'S Storm 2000

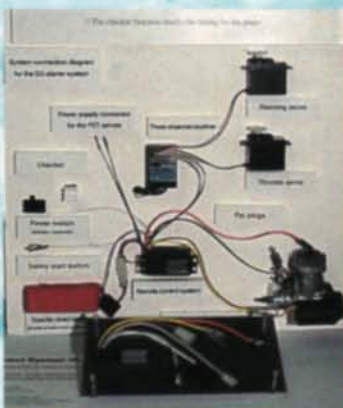
This brand-new racing truck from Schumacher is based on their popular Cougar 2000 2WD car, but it brings a few new features to the battlefield. The truck can run seven cells in line; it has Schumacher's new coaxial drive shafts; it features new steering geometry and front-suspension geometry; and it's completely adjustable. You can adjust the wheelbase fore and aft; and it has a gear tranny, an adjustable servo-saver, and long front and rear suspension arms and shocks.



BRP Oval Outlaws

These 1/16-scale Oval Outlaws from Bud Bartos retail for \$59.95. The kit consists of a body, a motor, a chassis and mounted-and-trued tires (electronics and battery aren't included). With a fully charged, 4-cell AA battery pack, the cars can run for 20 to 25

minutes, topped out at 10mph! The cars are relatively maintenance-free and can be run almost anywhere.



KO PROPO Remote Starter System

KO Propo displayed their all-new on-board starting system for 1/10- and 1/8-scale buggies and trucks. This compact, efficient unit features an on-board glow igniter and an electric drive motor. The good folks at KO demonstrated it

for us, and the engine fired up on the first try every time.

ESP Super Blackfoot Aluminum Chassis

Eric Sutcliffe of ESP presented his newest aluminum after-market chassis for the Tamiya Super Blackfoot. The factory servo-saver linkage has been repositioned lower in the chassis; this eliminates excessive toe-in during suspension travel. The kit comes with an aluminum front bumper/skidplate. All the other stock Tamiya components can be bolted right onto it.



MRC Nitro Truck

MRC is stepping into the gas arena with their all-new, nitro-powered truck. Based on their popular, durable World Scale chassis and tranny, this .21-powered vehicle is lighter than most 1/8-scale buggies. The project is in its early stages, and reports from MRC tell us that this truck is almost too fast!



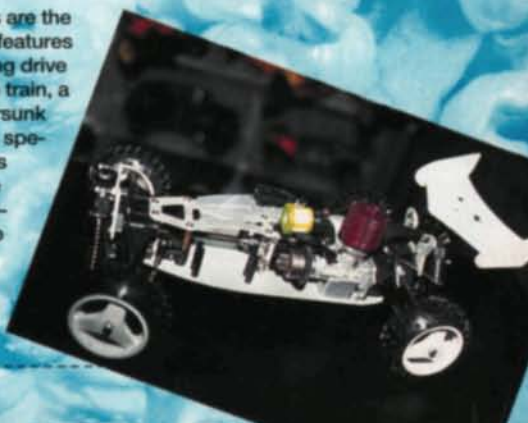
PRO-LINE Road Hawgs

It's time to hit the streets! The Pro-Line Road Hawgs are directional tires with street treads that are made of Pro-Line's XTR compound. The Road Hawgs provide instant traction for backyard, parking lot and carpet racing. The tires fit any 2.2-inch truck wheels, and each pair comes with one right and one left tire. The Road Hawgs will soon be available for 2-inch buggy wheels.



PIRATE 10

Tenth-scale 4WD gas cars are the latest rage. This Pirate 10 features full ball bearings; 4W sliding drive shafts; a solid center drive train, a double-brace fully countersunk (underside) chassis; and a special racing saddle-type gas tank. It will probably come without an engine. When—and if—Horizon decides to distribute the car, it might be available in a package deal with their new TNT .12 engine.



RACER NEWS

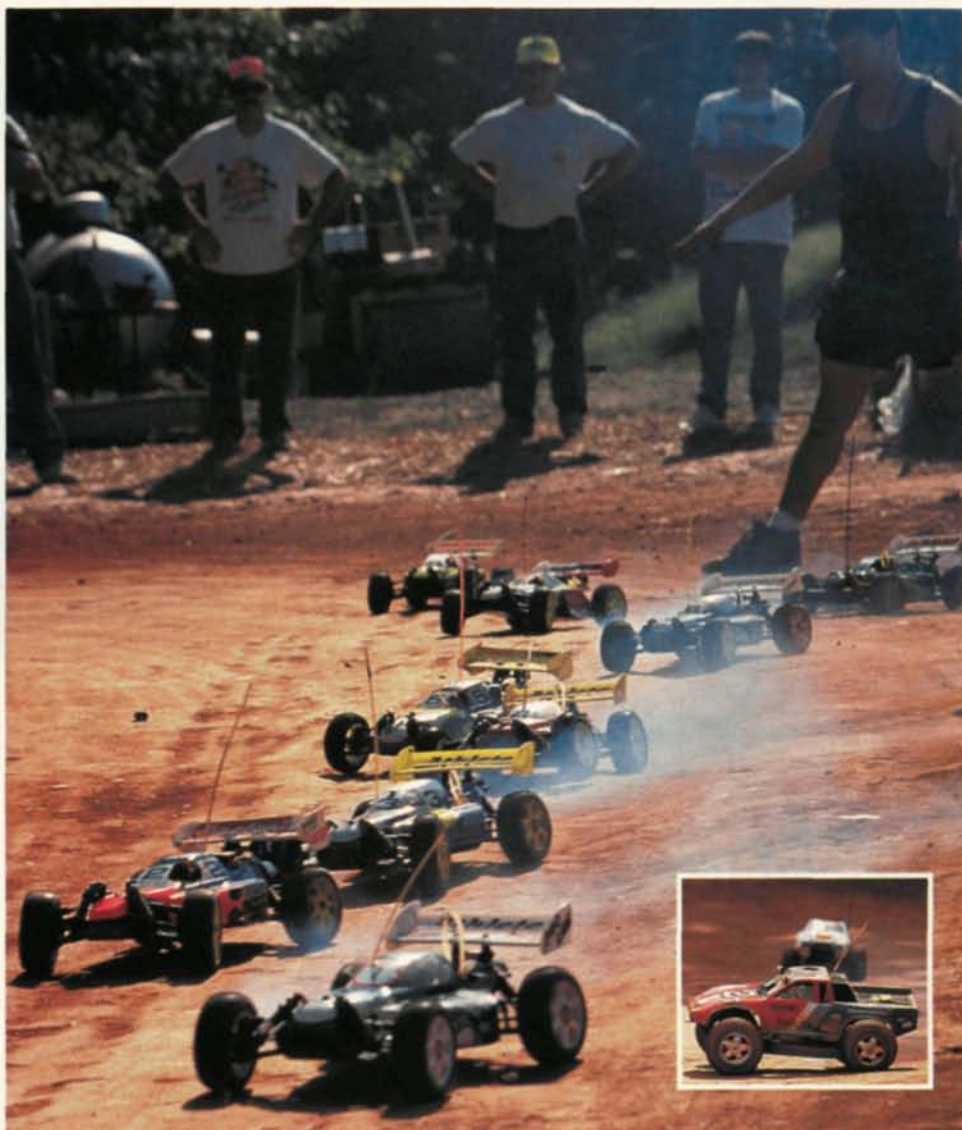
WORLD • CLASS • RACING

Nitro fever has settled in King, NC. Paul Covington of PC Hobbies recently hosted the Mid-Atlantic Gas Challenge in which top drivers from Team Kyosho and Team Mugen battled it out. Paul has one of the best on-road racing facilities; now, he has also created one of the premier 1/8-scale off-road tracks. The huge track is carved into the side of a hill so that rain runs off it—a feature that looked as if it might be helpful as rain clouds loomed over the track for most of the weekend. The weather wasn't much of a factor, however, and we had some very exciting racing.

In the 1/10-scale truck division, the TQ position was held by hometown hero Scott Moody. In the truck division, Allen Losi (Gil Jr.'s brother) made a guest appearance and tossed his truck around the track. Brian Kinwald piloted his Mugen Athlete to the top spot in the 1/8-Scale Buggy Class, and he was considered one of the favorites going into the 45-minute main event. Kris Moore of Team Kyosho was also tearing up the track at a pace very close to that of Kinwald's. Would he be the victor at the end of the race?

This race also marked the debut of the hot, 1/8-scale Stadium Truck division that featured the Inferno ST and the Mugen Super Sport Toyota pickup. It was so zoot we can't

Nitro Mania



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Classic

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Mania

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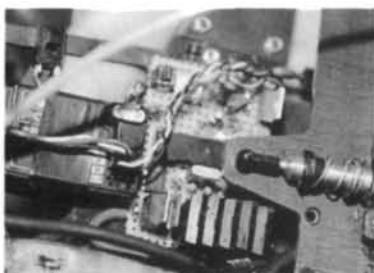
even begin to tell you! It was, by far, the most popular class of the race. Look for our King coverage in a future issue!

FUTURISTIC ESC

At the PROCAR Worlds in King, NC, we spied Vantage Engineering's Steve Gilbert driving an odd-looking ESC. Here's what Steve told us about the speed controller: "We're getting ready to release this new speed controller, the V410 ProFET ESC, and we

Future updates will include in-race data logging of motor-amp draw and battery voltage

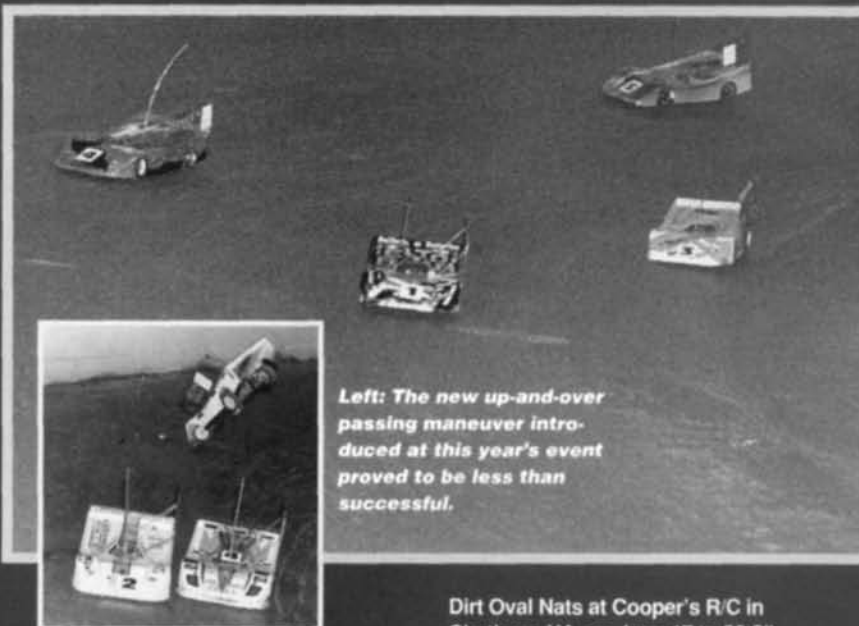
came down here to do some testing. The ESC is microprocessor-based and uses FETs that are nearly double the size of conventional speed controllers. These larger FETs offer one third less 'on' resistance than the lowest standard-size FETs that are currently available. This one is a hand-made prototype using through-hole components; however, the production units will make extensive use of surface-mounted components to yield an ESC that's similar in size and weight



Vantage's V410 ProFET prototype ESC.

to other controllers. The on-board microprocessors allow 'potless' programming of forward, neutral and braking points as well as control of throttle response and throttle curve. Future updates will include in-race data logging of motor-amp draw and battery voltage, which can be downloaded to a PC via RS-232 connections. We should have production units soon."

Down an'



Left: The new up-and-over passing maneuver introduced at this year's event proved to be less than successful.

by Stan Van Druff

When I heard that the ROAR Dirt Oval Nationals would be held in Virginia, I vowed I wouldn't miss it. In fact, I even considered writing an article on it! About a week before the race, I got a call: "Hey, Stan, you live in Virginia, don't you? Could you cover the

Dirt Oval Nats at Cooper's R/C in Chatham, VA, on June 17 to 20?" "I guess I could sacrifice this one weekend."

WE FOUND IT

The first order of business was to check out the track. Cooper's has a 1/4-scale paved oval and an off-road course, but the Nationals were held on the 120-foot-

2WD Stock

Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
1	1	Chris Dippel	Intimidator	Novak	Handout	Voodoo
2	2	Ed Krupa	Intimidator	Novak		Hot Shot
3	3	William Lipscomb	Intimidator	Tekin		Hot Shot
10	4	Crispin Anbas	Intimidator	Novak		Double Strike
4	5	Matthew Wojtkowiak	Intimidator	Tekin		Team SLC
7	6	James Wingo	Raborn	Tekin		J.P.M.
6	7	Ken Martin	Intimidator	Novak		New Wave
9	8	Frank Tucker	Intimidator	Novak		Hot Shot
8	9	Randy Clark	Intimidator LTO	Tekin		B&T
5	10	Mary Ann Sokol	Intimidator	Novak		New Wave

4WD Stock

Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
2	1	Frank Tucker	Dominator	Tekin	Handout	Hot Shot
1	2	Jason Belton	SRP-1	Novak		Ballistic
7	3	Ken Long	Dominator	Tekin		Voodoo
5	4	Jimmy Mills	Dominator	Tekin		B&T
8	5	Bill Impson	Dominator	Novak		Hot Shot
4	6	Norris Cooper	Dominator	Novak		Voodoo
9	7	Mike Gosnell	Dominator	Tekin		Voodoo
10	8	Charlie Shotwell	Dominator	Tekin		Hot Shot
3	9	Jesse Belton	SRP-1	Novak		Ballistic
6	10	Matthew Rogers	Dominator	Tekin		PTI

Sprint Stock

Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
1	1	Mike Conkey	Enforcer	Novak	Handout	Sanyo
2	2	Keith Steinle	Enforcer	Tekin		Hot Shot
6	3	George Verbonitz	Enforcer	Novak		Hot Shot
8	4	Jeff Belton	Enforcer	Novak		Ballistic
4	5	Eugene Ryder	Enforcer	Tekin		World Class
9	6	Jimmy Mills	Enforcer	Tekin		B&T
3	7	Rich Roy	Enforcer	Novak		Voodoo
7	8	Alan Duffy	Enforcer	Novak		Hot Shot
5	9	Brian Breckenridge	Enforcer	Novak		Team Smooth
10	10	Russ Brown	Enforcer	Tekin		Sanyo

irty



long indoor dirt oval. Track owner Norris Cooper started grooming the red Virginia clay surface in early April, and it was nearly perfect. It was smooth and had gobs (regional term meaning "heaps") of traction. A little "dog leg" at the end of the front straight kept the drivers from running on autopilot.

LOOK AT THOSE CARS
Concours judging on Thursday brought out some beautifully crafted cars. Three prizes were awarded for best

appearance regardless of class. Jason Belton's immaculate SRP-1 won first place. His Enforcer won second with what has to be the most radical paint in sprint car history. George Vardzik placed third with a realistic and beautifully detailed Enforcer.

This year's event had six classes: 2WD Stock, 4WD Stock, Sprint Stock, 2WD Modified, 4WD Modified and Sprint Modified. Heats and Mains were held in that order. Two

qualifying rounds were held on Friday and two more on Saturday, while the A-Mains were held on Sunday.

QUALIFIERS

Local drivers Chris Dippel and Norris Cooper and some regulars from Pennsylvania seemed to have the advantage on Friday morning. By Saturday, though, almost everyone had dialed in to the track. The Virginia sun was unusually fierce (did I mention that it was hot?), but it had no effect on the track. That the track surface didn't vary during the entire weekend really helped to keep the competition fair.

Local favorite Chris Dippel had a consistently good weekend and was the top qualifier in 2WD Stock. Jason Belton TQ'd in 4WD Stock, and Mike Conkey TQ'd in Sprint Stock. Chris Smith had the fastest

car at the track (he broke the track record) and got the pole position in both 2WD and 4WD Modified. Brian Breckenridge TQ'd in Sprint Modified.

RACE DAY

All the qualifying heats were exciting, but by Sunday, you could feel a change in the atmosphere. Drivers were all charged up, and even more fans crowded into the stands and around the track. I won't go into a blow-by-blow of the races, but here are some highlights from the A-Mains.

STOCK
Everyone in the 2WD A-Main qualified with 38 or 39 laps, so I knew it would be a

close race. Chris Dippel led from the horn, and no one ever seriously challenged his position. Drivers were so closely matched that the only way to advance was if the car



The track was great this year. It was groomed to perfection and stayed that way throughout the race.



Here's a look at the '93 Dirt Oval Nats A-Main competitors.

4WD Modified

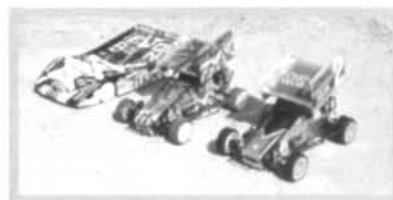
Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
2	1	Craig Perry	Dominator	Tekin	East Coast	Crow Enterprise
1	2	Chris Smith	Dominator	Novak	East Coast	New Wave
4	3	Kim Petticord	Dominator	Tekin	Cam	PTI
7	4	David Vanderwerf	Dominator	Tekin	Twister	MPI
5	5	Jesse Belton	SRP-1	Novak	Extreme	Ballistic
6	6	Phil Asseff	Dominator	Tekin	Cam	PTI
9	7	Eckhart Eppich	Dominator	Tekin	Perfect Wound	
						Perfect Match
8	8	Alan Duffy	Dominator	Novak	Cam	Hot Shot
3	9	Matt Spilvalo	Dominator	Tekin	Kisby	Ballistic

Sprint Modified

Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
2	1	Rob Russell	Enforcer	Tekin	Extreme	World Class
9	2	Rob Cutman	Enforcer	Novak	East Coast	Hot Shot
5	3	Randy Fisher	Enforcer	Novak	East Coast	Hot Shot
3	4	Jeff Greenly	Enforcer	Novak	Peak Perf.	Hot Shot
4	5	Randy Hobena	Enforcer	Novak	Team SLC	Team SLC
7	6	Nick Rank	Enforcer	Tekin	Cam	Ballistic
6	7	George Vardzik	Enforcer	Tekin	Cam	World Class
8	8	Scott Moody	Enforcer	Novak	East Coast	Perfect Match
10	9	Kirby Hand	Enforcer	Tekin	East Coast	Hot Shot
1	10	Brian Breckenridge	Enforcer	Novak	Extreme	Team Smooth

2WD Modified

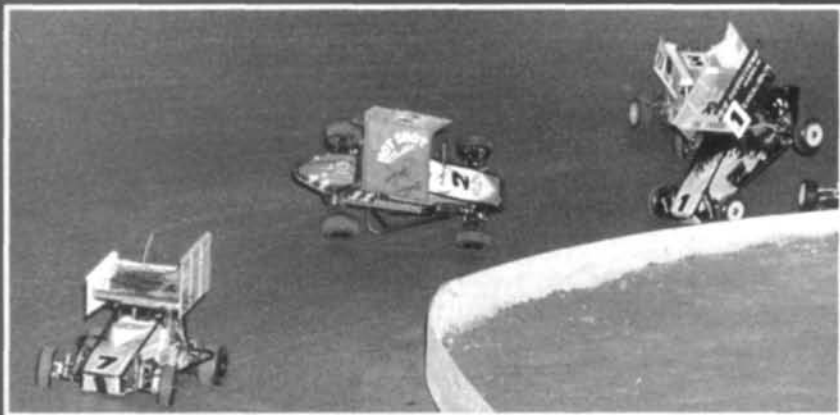
Qual.	Fin.	Name	Chassis	ESC	Motor	Batteries
4	1	Matt Spilvalo	Intimidator	Tekin	Kisby	Ballistic
1	2	Chris Smith	Intimidator	Novak	East Coast	New Wave
8	3	Ed Krupa	Intimidator	Novak	Peak Perf.	Hot Shot
2	4	Gary Krichbaum	Intimidator	Tekin	Extreme	VooDoo
10	5	Jeff Greenly	Intimidator	Novak	Peak Perf.	Hot Shot
7	6	Crispin Aribas	Intimidator	Novak	Extreme	Double Strike
5	7	Ken Martin	Intimidator	Novak	East Coast	New Wave
9	8	Scott Moody	Intimidator	Novak	East Coast	Perfect Match
6	9	Nick Rank	Intimidator	Tekin	Cam	Ballistic
3	10	Kirby Hand	Intimidator	Tekin	East Coast	Hot Shot



Left to right: Jason Belton's first-place SRP-1 and his second-place Enforcer. George Vardzik's third-place Enforcer.

Down an' Dirty

(continued)



in front of you made a mistake. Dippel made few mistakes, and he was the only car to finish with 39 laps.

In 4WD Stock, Frank Tucker grabbed the lead before the first turn, but he had a slightly harder time keeping it than Dippel did. Jess Belton and Norris Cooper were nipping at his heels until the 2-minute mark when they tangled and dropped to the rear of the pack. No one else challenged Tucker's lead, but he spent the rest of the race dodging

stayed in front. Conkey eventually gained the lead, and Steinle found his car in the infield when he tried to take the lead back. Three laps later, Conkey got caught up in some traffic and Steinle was right back on him. This went on until the horn, and Conkey crossed the line just 1.3 seconds ahead of Steinle.

MODIFIED

Tension must have been pretty high in the 2WD Modified A-Main. On the first

The 4WD Modifieds hooked up really well, and it was an exciting race. Things started poorly, though. A crash on the starting line permanently took out Alan Duffy and Matt Splivalo before they could get to turn one. Chris Smith started in the lead, but by a minute-and-a-half, he was tangled with another car, and Kim Petticord took over first. Craig Perry closed the gap on Smith, and all three chased around the track like a bullet train. At 3 minutes, Petticord bobbled, and Smith hammered him from the rear and slowed them both down. Perry took over the lead and held it to the finish.

Where the Stock Sprint A-Main was really smooth, the Modified Sprint A-Main was totally wild. By the 30-sec-



Mary Ann Sokol was the only woman competing at the Nationals. It looks as if she enjoyed the competition.

JUST TELL ME WHAT THE RULES ARE

You can't race when everyone doesn't agree with or doesn't understand the rules. This year's Dirt Oval Nationals was no exception to this.

ROAR rules are somewhat ambiguous and open to interpretation, so Matt Wojtkowiak Sr. (ROAR Region II director) was on hand to make sure that everyone had the same interpretation. This year's big discussion was about wing height.

Some of the newer wedge bodies have a small molded-in wing. Some racers wanted to measure the added wing from the top of the molded-in wing, but Wojtkowiak decided to measure from the flat part of the body. After a

lot of complaining, a couple of racers commented that their cars actually ran better after their wings had been bent down to conform to the rule.

ROAR had the foresight to eliminate another possible controversy before the race had even started. Just before this year's event, they banned the use of comm lathes on stock motors. Though the wing ruling was only for the Nationals, the stock comm lathe will be banned from all ROAR races.

and weaving through traffic. Jason Belton got a well-deserved second, while Ken Long rose from seventh to third almost unnoticed.

The Stock Sprint A-Main was a fabulous race. Keith Steinle took an early lead, but Mike Conkey dogged him constantly. Conkey bumped him once, and Steinle went up on two wheels, but he

lap, there was a major wreck that involved half the field. Then there seemed to be a crash every lap for the next 4 minutes. Matt Splivalo avoided the first-lap crash, so he held a big lead. Ed Krupa and Chris Smith battled for second during the whole race, with Smith eventually capturing the number-two spot.

ond mark, there was a major pile-up and parts were flying! When the marshal found George Vardzik's no. 6 transponder lying on the track, he misread it as no. 9, which belonged to Rob Cutman. Wayne Burgess manually added laps to Cutman's score until he noticed that Cutman was making twice as many laps as anyone else!

After the race, Burgess called the drivers together. They reviewed a videotape of the race, and he tried to piece together just what happened. Everyone was pleased with Wayne's efforts to get it right, and Rob Cutman ended up in second even without the extra laps!

I thank Norris and Pat Cooper for their hospitality and for doing a great job with the race preparations. Thanks also to Wayne Burgess and Matt Wojtkowiak for keeping the race running smoothly and fairly.

FANTASTIC FINALE

by Mike Lee

Summer has always been the time of year for off-road racing fans. When fall comes along, however, students have to trudge back to school. Wouldn't it be great to pack in just one more big race? Well, that's just what the guys at Pro-Line thought.



Here's the setup for a buggy: a full set of Pro-Line tires, a 6-cell Reedy battery pack and a Reedy Force I 24-degree motor. You get to wear a handout race shirt and pay only \$25. Is this a deal or what?

They teamed up with the mad dogs at MnM Hobbies of Corona, CA, to present the first annual Endless Summer Classic—the final big race of the season.

Pro-Line made it interesting, too; for the \$25 entry fee, they provided a set of front and rear tires—XTR Traction-Plus step pin rears and four-rib XTR fronts. Truck drivers were treated to a set of Traction-Plus step-pins and a matching set of stagger-rib front tires. Associated and Reedy provided Force I 24-degree stock-class motors and Reedy 6-cell battery

packs. Mondo deal, no doubt! Racers also received a freebie racing shirt from MnM Hobbies. It was the racing deal of the century, and more than 250 drivers registered to get a piece of the action!

MnM Hobbies is a first-class, 150x60-foot indoor dirt-track facility with pit space galore. The drivers' stand is a work of art with enough space for 20 drivers. The facility also has a carpeted road-course, a full-service snack bar and a hobby shop.

Brian Kinwald took 2WD Modified by a car length over Scott Hughes. B.J. Christensen was two lengths back. Stock Truck was taken by Ken Phillips, followed by Pat Kivin and George Reneau. In 2WD Stock, it was Jayson Pang all the way, followed by Gene Hickerson in second and Rich Trujillo in third. The 4WD Modified Class saw Randy Kato walk away with the honors, trailed by Howard Combee and Patara Bhenbharguul. Modified Truck saw a classic battle, with Scott Hughes taking the win over a hard-charging Brian Kinwald.

In the Sportsman Truck Class, Lawrence Verdugo freed himself from the first-turn blues, while everyone else got caught in the free-for-all that followed. Mark "The



Top left: Modified Truck A-Main top five (left to right): Rudy Rodriguez, Drew Richards, Levi Noble, Brian Kinwald and Scott. • Top right: 4WD Modified top three (left to right): Patara Bhenbharguul, Howard Combee and Randy Kato.

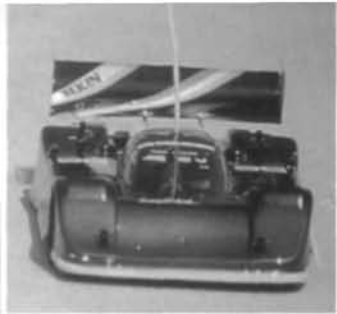
Middle left: Sportsman Truck A-Main top four (left to right): Kenny Prue, Colby Poh, Mark Williamson and Lawrence Verdugo. • Middle right: Modified 2WD top five (left to right): Scott Roberts (TQ), A. Puektia, Gene Hickerson, B.J. Christensen, Scott Hughes and Brian Kinwald.

Bottom left: Stock Truck A-Main top five (left to right): Drew Richards, Rudy Rodriguez, George Reneau, Pat Kivin and Ken Phillips. • Bottom right: Sportsman A-Main top five (left to right): Pat O'Donnell, Mike Lee, Husani West, Robert Aschtgen and Matthew Evans.

Hammer" Williamson took second, followed by Colby Poh.

When Sportsman Buggy drivers took to the track, Matthew Evans took a stroll to victory lane, with Robert Aschtgen in second and Husani West in third.

The awards for this race were terrific. Superbly made plaques were given to the winners; the TQ of each class was also given a plaque with a built-in clock. As if that wasn't enough, Pro-Line also tossed in a couple of sets of tires. This is the way racing ought to be. Thanks to Pro-Line, Associated/Reedy, and MnM Hobbies, this was the race of summer coolness. Check it out in '94!



RC10L INSANE

CONVERSION

by GEORGE GONZALEZ



PHOTOS BY GEORGE GONZALEZ

RACING A $\frac{1}{10}$ -scale R/C car at speeds of more than 80mph is—to say the least—totally insane. The stress on the car's tires, chassis, drive train and electronics is enough to create a $\frac{1}{10}$ -scale nuclear meltdown. One slight glitch can turn an expensive R/C car into tomorrow's garbage; just imagine a full-size stock car clipping a rail at 800mph. It's not a pretty picture.

So, why build an Insane Speed Run car? Because there's a thrill seeker in every R/C racer, and we all have the same need for speed. Does the thought of piloting an R/C car at speeds that would warrant a ticket on the highway start your mouth watering? Do you think that the title "world's fastest" has a nice ring to it? Hobby Products Intl. (HPI)* has a conversion kit that will turn your Associated* RC10L or 10L SS into an Insane Speed Run car like the one Gary Hamilton used on his record-setting 85.02mph run at the '92 R/C Thunderdrome.

BUILT FOR SPEED

The foundation of HPI's conversion kit is the graphite chassis. At first glance, it seems to be similar to the stock RC10L SS chassis plate, but it has a few unique features. Its wheelbase is $\frac{1}{4}$ inch longer, and this makes



Here's a view of my completed 10L featuring the HPI Insane Speed Run conversion kit. The kit includes everything you'll need to get up to speed. (Pardon the pun!)

side braces are mounted on the chassis with aluminum posts, and they're bolted on the front suspension arms. The chassis also includes a graphite, side-roll adjustment plate and HPI's Aero lower brace, which increases rear-end traction and protects the spur gear in rear-end collisions. A graphite suspension-arm brace completes the most rigid oval chassis I've tested.

the car more stable on banked ovals, such as the Thunderdrome. It's also narrower in the rear and wider in the front (although the front track hasn't been changed).

These subtle design changes make HPI's chassis plate lighter and stronger than the original. It also has six battery slots on each side to accommodate the multitude of batteries the car uses.

The chassis plate has graphite side braces that provide longitudinal support and limit chassis flexing, making it far more rigid. The

**KIDS—
TRY
THIS
AT HOME!**

INSANE CONVERSION

THE CONVERSION BEGINS

To convert an RC10L or 10L SS into an Insane Speed Run car, you'll need a complete 10L or 10L SS kit. If you're converting a standard-width 10L, you'll need:

- a Superspeedway front bumper;
- an SS rear axle;
- an SS upper pod bracket;
- an SS T-bar with a fiberglass spacer; and
- a set of SS graphite nerf bars.

Unfortunately, the HPI conversion kit is designed to work with the 10L's original front suspension arms, so it won't work with Associated's new Dynamic Strut front suspension. Fear not; with a little "jimmy rigging," the conversion kit will mate with the Trinity* Reactive Caster front suspension (but that's another story).

Converting the 10L/10L SS is relatively simple. The instruction sheet is basically an exploded diagram of the kit; the text is a little vague, but it's just a matter of removing the stock suspension components and mounting



I used a Paragon Racing Equalizer titanium dampener post; it's easier to adjust than the stock unit. An Associated graphite axle is in the rear of the car, and I installed a Robinson Racing spur gear and a set of BRP ceramic diff rings and hardened steel balls.

them on the HPI chassis plate. You can also refer to the 10L's original instruction booklet for more details. The instructions start from the front of the car and work back.

I removed the front suspension arms with the steering blocks and axles intact, and I installed

them on the HPI chassis plate with the original aluminum screws. I used a 1/4-inch nylon spacer between each suspension arm and the chassis as a starting point for the ride height—a critical adjustment that will be covered in detail later. I installed the HPI Pro arm brace to the suspension arms and mounted the bumper. Use the kit's original aluminum locknuts to secure the brace to the suspension arms. The HPI chassis plate will accommodate the 10L SS front bumper or any narrow SS after-market bumper.

Mount the aluminum posts using the three mounting holes that have been drilled and countersunk on each side of the chassis plate to mount the posts and the original graphite nerf bars. Use the conversion kit's flat cap-head screws and a drop of thread-lock to secure the posts to the chassis. Note that the kit comes with four sets of posts of various lengths, and it's important to install the posts in the correct positions. If you carefully study the diagram before you install them, you won't have a problem.

PARTS LIST

HPI Project RC10L SS Insane Speed Run conversion kit (no. 8010)

- Insane chassis (no. 6215)
- Insane chassis side brace (no. 6216)
- Pro arm brace (no. 6221)
- rear chassis brace (no. 6196)
- adjustment plate with spacer (no. 6200)
- Aero lower brace (no. 6015)
- wing mounts (no. 6090)
- Teflon tape (no. 6212)

True Turn

- aluminum hubs (nos. 6145, 6155)

Associated

- complete RC-10L SS Kit
- hard-coated Team Shock
- Jaguar XJR16-narrow body (no. 6125)
- GTP racing wing (7 inches) (no. 8101)

Tecnacraft*

- titanium steering rods

Robinson Racing Products

- 118-tooth 64-pitch spur gear

Bolink R/C Cars Inc.*

- servo mounts

Paragon Racing Products

- titanium equalizer damping post (no. EP855)

BRP

- ceramic diff rings (no. 2115)

Airtronics

- caliber 3P FM transmitter and 3-channel receiver
- 94151 servo

Tekin

- 420-G2 ESC
- Schottky diodes (2)

Ballistic Batteries

- Sanyo 1000mAh SCR 16-cell saddle pack

Novak Electronics

- mini-receiver battery pack

Kimbrough Products*

- large servo-saver

BSR Racing Tires

- narrow Gold (rear), standard Silver (front), rubber-capped tires

Dan's RC Stuff*

- battery straps

The next step is to remove the T-bar and the motor pod and install them on the HPI chassis plate. They only had to be partially disassembled to install the HPI Aero lower brace and rear chassis brace; this saved time, but I added some other trick goodies for good measure. I used a Paragon Racing* Equalizer titanium damper post, which is easier to adjust than the stock unit, makes the car more forgiving in the rough sections of the track and increases the car's stability and handling

SETUP TIPS FROM GARY HAMILTON

Because I'm an avid oval racer and know the RC10L SS like the back of my hand, I had a general idea of how to set up the car to tackle the giant banked turns of the infamous R/C Thunderdome. While talking to Gary Hamilton, however, I found that my initial setup was totally wrong. Gary sets his car with 0 degrees of caster and 0 degrees of camber. Furthermore, he doesn't use staggered tires (a real surprise to me), and he points the front tires straight ahead without any toe-in/out.

Up front, Gary uses Associated 0.022 springs on both suspension arms. They're stiffer than the stock springs, so they can handle the increased weight of 16 cells. Gary explains that because the Insane Speed Run car must complete only a single lap, there isn't time for the car to benefit from

the effects of caster/camber or running staggered tires.

I understand why he sets the car with 0 degrees of camber, but I still think that experimenting with caster and some staggered tires wouldn't hurt. (But who am I to argue with success?)

Gearing is another important factor in setting up an Insane Speed Run car. Your motor and battery selection will be a contributing factor when you decide which gear ratio to use; the diameter of the tires will also have to be factored in. Unfortunately, the only way to find the right gear ratio is to experiment and compare the results using a stopwatch. For this setup, Gary recommends that you start with a gear ratio around 4.0:1 and go up or down from there.



A Kisbey Modifieds 12-turn modified motor provides the punch with help from a Ballistic Batteries 16-cell pack.

owing to its free-floating operation. I used some HPI Teflon tape on the damper washers to ensure smooth operation.

I replaced the stock shock absorber with an Associated hard-coated Team shock equipped with a .040 off-road spring, and I topped it off with 35WT pure-silicone oil. Then I installed the HPI adjustment plate on the stock T-bar; the adjustment plate is used to limit side roll, and it's adjusted by tightening or loosening the cap screws on each side.

With the rear suspension installed, it was time to work on the diff. I used the stock Associated graphite axle, but to provide smooth and consistent diff action, I installed a set of BRP* ceramic diff rings and hardened-steel balls. A Robinson Racing* 118-tooth, 64-pitch spur gear and a light coat of



I chose Tekin's new 420-G2 ESC because it can be used for more than one run. When you run a lot of cells, you must run two Schottky diodes to prevent voltage spikes from damaging the ESC.

diff lube were the "icing on the cake." To lower the rotational mass, I installed a pair of light True Turn* aluminum hubs.

I then installed the graphite side braces. Before you mount the side braces, however,

it's best to mount the tires and adjust the ride height. (The ride height is adjusted as described earlier.) Also, it's best to set the ride height as level as possible (but not so low that the chassis drags on the track surface).

Now you can properly install the side braces, which must be perfectly parallel to the chassis plate. The braces are bolted on the front suspension arms, so the height of the braces will vary according to the front ride

height. The kit includes aluminum spacers that fit between the posts and the braces to adjust the braces' heights. This may seem confusing, but it's just a matter of adding or subtracting aluminum spacers to keep the side braces parallel to the chassis plate. After the ride and side-brace heights have been set, use a drop of thread-lock on the button cap-head screws that secure the braces to the posts.

NUCLEAR POWERPLANT

In my many years of 1/10-scale, electric-oval racing, I've learned that mega-speed requires mega-bucks. When it comes to building an Insane Speed Run car, there's no cutting back on expenses. Although HPI's conversion kit is reasonable, the cost of the electronics you'll need to compete in this event will definitely break your piggy bank.

The nice folks at Ballistic Batteries* supplied the juice for my project car, and they furnished me with a matched, 16-cell, 1000mAh SCR battery pack. Gary Hamilton will use 20 cells at the next Insane Speed Run, but I think that 16 cells is more than enough power. You can charge a 16-cell battery pack six cells at a time, but a high-quality charger, such as a Tekin* BC 210 or a Novak* Digi-Peak, is recommended.

The horsepower for my project car is supplied by an extremely potent, 12-turn, modified motor that was tweaked to perfection by Dave Kisbey of Kisbey Modifieds. Gary used this motor on his record-setting speed run, so I knew I had one "kick—" motor.

I use a Tekin TSC 420-G2 ESC to manage the extreme horsepower that the battery pack and the motor put out. In the past, a speed controller was considered a disposable item on an Insane Speed Run car, and it would only last a few runs, but Tekin's new 420-G2 with Gold Fet II transistors and special internal construction lasts run after run. The 420-G2 has the same features and

specifications as the "champion's choice"—the 411-G2—and it can handle almost twice as many cells. I really like the new external wire-attachment posts on the 420-G2, because they allow me to tailor-fit the ESC to any car without worrying about cutting the wires too short. I can always solder new wire of any length to the attachment post without performing surgery on my ESC. The 420-G2 has a built-in Schottky diode, which is good for eight cells. When you run 16 cells, two extra Schottky diodes must be used on the motor to prevent voltage spikes from damaging the ESC; this doesn't have anything to do with additional braking power. While we're on the subject of braking: a car with a 420-G2 will stop *before* the dime!

I don't want to take any chances with controlling my Insane Speed Run car, so I use my trusty Airtronics* Caliber 3P microcomputer-controlled FM transmitter and 3-channel mini-receiver. I've used this controller for several months now, and I can honestly say that it's the best R/C investment I've ever made.

To provide lightning-speed steering, I installed an Airtronics 94151 high-speed/torque servo. This is probably overkill, but what the heck. I wanted to make sure that power was provided to the receiver and servo, so I attached a Novak 5-cell mini-receiver pack to the chassis with servo tape and Shoe Goo.

RADICAL RADIALS

Tire selection is probably one of the most critical factors in setting up an Insane Speed Run car. As the cars fly down the straight-away at lightning speeds and suddenly reach a giant banked corner, racers think, "Is this thing going to turn, or what?" Another concern that might cross their minds is, "Can the



The '92 Insane Speed Run champion, Gary Hamilton of HPI, helped me through my first test session. Even though I didn't break any records, I did attain some really radical speeds.

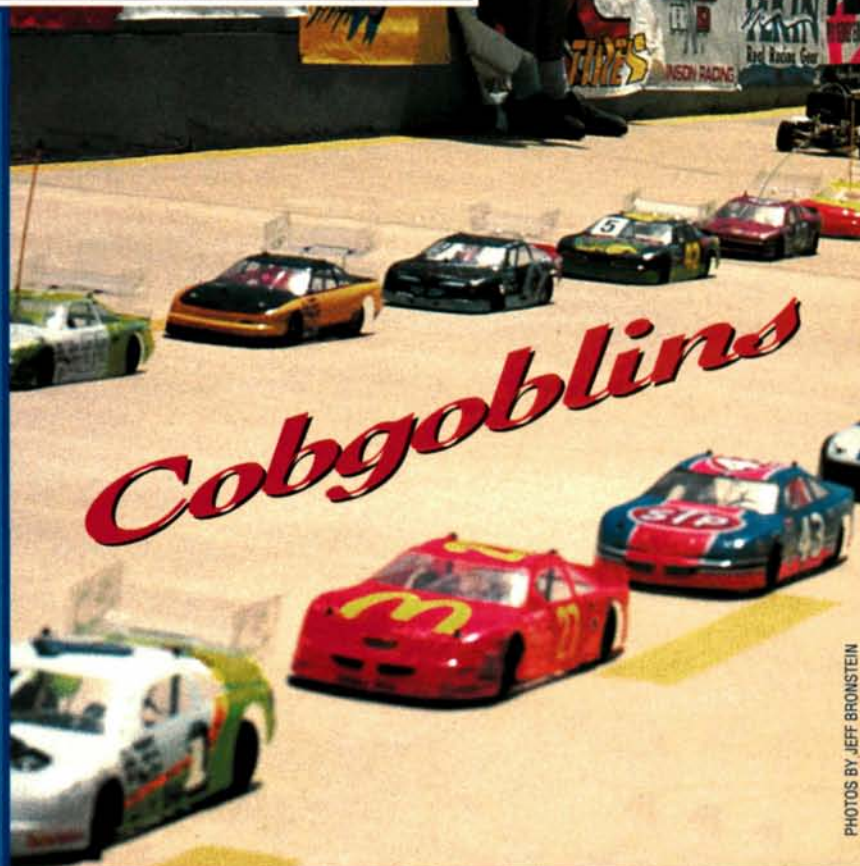
tires take the tremendous rpm, or will they explode like old M-80s with short fuses?"

Let me tell you, folks, I'm one to roll the dice on occasion, but I don't like to take any chances when big bucks are involved. Wondering whether my car is going to turn or whether the tires can withstand the speed isn't on my agenda. Because I planned to test my car at Cal State's bicycle velodrome—site of the R/C Thunderdrome—in Rancho Dominguez, CA, I took Gary Hamilton's advice and opted for a set of BSR* rubber-capped racing tires.

BSR racing tires are well-balanced, and

(Continued on page 118)

by JEFF
BRONSTEIN



PHOTOS BY JEFF BRONSTEIN

SURROUNDED BY rustling cornfields, the Ameri-Trac tri-oval in Mattoon, IL, is a monument to R/C racing and the American spirit. World-class racers from across the country stepped up to the ultimate R/C challenge: the first year of the PROCAR World Series. Although there's still some debate over the new format, no one can grumble about an organization that encourages honest racing and promotes our sport.

The participants—nearly 150 at the Mid-America Nationals—raced for cash prizes and gift certificates, but PROCAR isn't just about racing for money; it's about bringing racing back to the racer. In this specialized class of on-road oval, the average racer can be overwhelmed by the professional efforts of many manufacturers. PROCAR's class specifications were developed to promote professionally sponsored competition while preserving the independent racing privateers. This allows manufacturers and team drivers to work *with* average racers, not against them. The participants race in three classes: the stock Sportsman Challenge, the modified Formula America and the Pro Series for professional drivers.



PROCAR's John Thawley congratulates Joel "Magic" Johnson on his A-main win.

PROCAR

Mid-America Nationals

AN IMPRESSIVE FIELD

The Mid-America Nationals was the second stop in the PROCAR Series, and it was sponsored by an impressive list of top notch manufacturers. The team drivers included Joel "Magic" Johnson, Jim Dieter, Shane Kocher and Mike Blackstock of Trinity; Tyree Phillips of Novak; Bud Bartos of BRP Racing; and Mike Boylan and Dave Hechler of TRC Racing. Chris Doseck made a comeback appearance, driving for CAM SuperModified motors.



Brian Booze takes home \$750 in cold, hard cash for his excellent driving and hard work in the Formula America main event. If Booze can keep up this pace, he's sure to have his number in the Pro Series next year.

continuous combination of turns 2 and 3 bring the track full circle. Although the record flooding and rainy weather in this region didn't affect the race, the heat and humidity made practice exhausting.

MAKING THE GRID

Qualifying kicked off in the cool of the morning, and the track was fast. As the sun began to climb, however, lap times

dropped. Very few drivers improved their performance in the second round, but there was one notable exception: Bartos in the Pro Series Class cracked out of the field and set a blistering new pace.

As the track cooled in the late afternoon, the pressure began to build. In the Pro Series, Johnson and Kocher put on a show



Shane Kocher (left) was a dominant force in the first PROCAR Nationals, but luck wasn't on his side in Mattoon. In the second qualifier, Shane's car was destroyed. Now, Joel, on the other hand....



Kyosho's new Indy car handled the track as if it were in the Indy 500!

WINNERS CHART

PRO SERIES A-MAIN

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Tires	Sponsors
1	2	Joel Johnson	Trinity	Trinity	Trinity	Novak	TRC	Trinity, TRC, Novak, Magic Motorsports, Point Blank, Speedworks
2	5	Mike Boylan	Comp. Craft	Yokomo	Sanyo	Novak	TRC	TRC, Twister, Composite Craft, Novak, Protoform, PSE
3	6	Dave Hechler	Comp. Craft	Yokomo	Sanyo	Novak	TRC	TRC, East Coast Modifieds, Novak, JR-Remote Control, Composite Craft, Bolink
4	3	Mike Blackstock	Trinity	Trinity	Trinity	Tekin	TRC	Trinity, Tekin, TRC, Futaba
5	4	Craig Carey	Hyperdrive	Cam	Sanyo	Novak	TRC	Cam, Protoform, BRP, Hyperdrive, TRC, Novak
6	10	Craig Perry	Bolink	Yokomo	Sanyo	Tekin	BSR	Bolink, East Coast Modifieds, Futaba, Tekin, BRP, Robinson Racing
7	8	Chris Doseck	Trinity	Cam	Cam	Tekin	TRC	Cam, TRC, Tekin, BRP, Trinity, Ko-Propo
8	7	Jim Dieter	Trinity	Trinity	Trinity	Novak	TRC	Trinity, TRC, Novak
9	1	Bud Bartos	Trinity	BRP	Sanyo	Novak	Bolink	BRP, Power Push, Novak, Bolink, DuraTrax, BSR
10	9	Tim Lanier	Bolink	Cam	Sanyo	Tekin	BSR	Bolink, Cam, Tekin, JR-Remote Control, Tekin

FORMULA AMERICA CLASS

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Tires	Sponsors
1	2	Brian Booze	Custom Lynx	Yokomo	Sanyo	Tekin	TRC	CEB Motors, Hot Shot Cells, East Coast Motors, Tekin
2	1	Rob Cutman	Comp. Craft	Yokomo	Sanyo	Novak	TRC	East Coast Motors, Hot Shot Cells, Novak, TRC, Composite Craft, Bolink
3	5	Jason Houser	Custom Lynx	Yokomo	Sanyo	Novak	TRC	CEB Motors, East Coast Motors
4	3	Frank Polimeda	Trinity	Trinity	Trinity	Tekin	TRC	Composite Craft, Protoform, Trinity, Tekin, Vantage, Jaco
5	9	Kirby Hand	10L SS	Yokomo	Sanyo	Tekin	TRC	East Coast Modifieds, Tekin, Hand Motorsports, Hot Shot Cells, Tecnacraft, DuMor R/C
6	4	Craig Evraets	Trinity	Trinity	Trinity	Tekin	TRC	Trinity, Protoform, Tekin, Mid West Tri-Clone
7	8	Mike Steineke	Trinity	Trinity	Sanyo	Tekin	TRC	Mid West Tri-Clone, Belray
8	6	Brad Hayes	Bolink	EPIC	Cam	Novak	TRC	Fantom Motors, Team Spivey, Power Push, PSE
9	7	Kevin Trent	Hyperdrive	Cam	Cam	Tekin	TRC	Cam, Hyperdrive, Protoform, PTI, Wolfe Motorsports
10	10	Demetrius Pitchford	Trinity	Trinity	Sanyo	Novak	TRC	Trinity, Novak, Belray

SPORTSMAN CHALLENGE CLASS

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Tires
1	2	Jamie Tennes	Trinity	PROCAR	Sanyo	Novak	TRC
2	1	Greg Kraios	Comp. Craft	PROCAR	Sanyo	Novak	TRC
3	5	Ricky Shilts	Om-10	PROCAR	Sanyo	Tekin	TRC
4	3	Steve Lafara	10L SS	PROCAR	Sanyo	Tekin	TRC
5	6	Ryan Annis	Comp. Craft	PROCAR	Sanyo	Novak	TRC
6	10	Brian Pannell	Hyperdrive	PROCAR	Sanyo	Novak	TRC
7	8	Dan Pierson	Trinity	PROCAR	Sanyo	Novak	TRC
8	9	Randy R. Marks	Hyperdrive	PROCAR	Sanyo	Tekin	TRC
9	7	Scott Murphy	Bolink	PROCAR	Sanyo	Tekin	TRC
10	4	Richard Bostic	10L SS	PROCAR	Sanyo	Tekin	TRC



until they tangled with a back marker and split Kocher's car in two. The pros immediately began to rebuild and re-tune. In the Sportsman Challenge, Greg Kraios came from left field and knocked Jamie Tennies out of the top spot. Local favorite Ryan Annis made his best performance of the day, and this placed him sixth in the grid after three rounds.

On day two, the pressure peaked during the single round of qualifying before the Mains. Kraios held on to the Sportsman TQ, but "Rad" Rob Cutman blasted the Formula America field with a blistering fourth round and took TQ honors. In the Pro Series Class, Johnson's fourth-round qualifying time fell short by less than 0.25 second, and Bartos held on to the TQ spot. The top four Pro Series drivers—Bartos, Johnson, Boylan and Carey—qualified within 0.6 second. Now *that's* tight racing!

The crowds lined the track as the participants prepared for the Main events. In the Pro Class, a series of "transfer" or bump-up

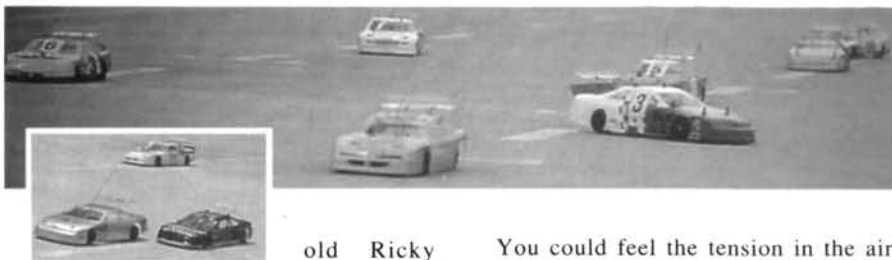


It looks as if this guy has his hands full!

Mains filled the remaining two positions in the A-Main. This unusual, exciting procedure kept everyone on his toes. In the first round of the Pros, David Timmerman and Kocher finished first and second, and they transferred into the next round. Round two of the Pro Series allowed Timmerman and Craig Perry to make the dash for cash.

MAINS FOR MOOLA!

When the tone sounded for the Sportsman Challenge A-Main, pole-sitter Kraios took the lead and tried to run and hide. He wasn't far enough, however, from Tennies and 9-year-



old Ricky Shilts, who tailed the leader for the first 2 minutes. Traffic derailed Kraios at the 3-minute mark, and Tennies seized the opportunity with Shilts in tow. Kraios battled back to second, but he couldn't catch Tennies, who went on to win the Sportsman

Kyosho's Bill Jeric made the trek to Mattoon and brought along a few Kyosho Indy cars to display between qualifying and the Mains. The crowd loved it!



inherited the lead and went on to his 4 minutes of glory. His run was a model of consistency and patience. He finished first with 36 laps in 4:03.96, nearly two laps ahead of Cutman, who came in second. If Booze continues this level of performance, there's little doubt that he'll be invited to join the ranks of the PROCAR Pro Series next year.

CHRIS

COME BACK

Chris Doseck has a long list of victories for Team CAM, and he has been one of the hottest drivers in R/C for several years. But late last year, Chris left the regular racing tour to enjoy the addition to his family: a baby girl. He had no idea, however, just how long or how hard he would have to work to return to racing.

An accident almost ended Chris's R/C racing career. While holding his baby under one arm, he tried to open a window that was stuck. He struck the frame with the base of his hand to knock it open, but he shattered the glass instead. His right palm and wrist were severely lacerated (three tendons and two nerves were severed) and they required extensive reconstruction.

After months of physical therapy and rehabilitation, Chris has regained most of the mobility of his hand. Although he still can't grasp things or shake hands, he can gingerly hold the steering wheel. Chris has a long way to go before he can compete as he used to, and his scar should remind us that nothing should be taken for granted. His return to the racing scene at the Procar Mid-America Nationals was a welcome sight. Best of luck, Chris.



PTI's Ralph Burch Jr. just captured the ROAR 1/8-scale On-Road National Championships. Now, he's testing his skills in the PROCAR Mid-America Nationals.

class with 33 laps in 4:04.38. Shilts held on to third place, and Steve Lafara and Annis took fourth and fifth.

Cutman won the starting-line battle in the Formula America Main, but he lost a fight with a back marker in the tri-oval. Cutman straightened out, but Brian Booze

You could feel the tension in the air when the Pro Series A-Main was about to begin. When the green flag dropped, it looked as if Bartos would pull away, but after one small bobble on the back straight, "Magic Man" Johnson took the point. Johnson opened up a slight lead at the halfway mark, but as his batteries began to flatten, Boylan of TRC/Composite Craft began to reel him in. Boylan looked for a clean opening, but he was wise enough not to force the issue prematurely; this might have caused him to take out both Johnson and himself. On the last turn, heading for the stripe, Boylan made a desperate move to the outside for the lead. His car hit the retaining wall and flipped as it crossed the finish. Too little, too late! Boylan was denied by less than 0.33 second, and Johnson took the win.

After the race, everyone realized that the fuss about racing for cash was much ado about nothing. In fact, the racers commented that the driving was much cleaner and more enjoyable. Everyone rose to the level of professionalism set by the PROCAR Series. If professional series racing is the wave of the future, this ride is off to a good start.

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ALABAMA

Berry R/C Raceway, Main St., Berry, AL 35543; Ronny, Don, (205) 932-3189



CJ's Hobbies, 3761 Government Blvd., Mobile, AL 36693; C.J., (205) 666-0016



Dixie R/C Speedway, Rt. 10, Box 210, Gadsden, AL 35901; Craig Reynolds, (205) 442-1059



Fleming's R/C Raceway, 169 Raceway Dr., Wellington, AL 36279; Phil Fleming, (205) 820-6269



Oak Mountain Raceway & R/C Club, 2624 Janice Circle, Birmingham, AL 35235; Will Barrett, (205) 856-7051



Performance R/C Hobby, 2600 A Bellline Rd., Decatur, AL 35603; Ray & Debra Steen, (205) 353-3399



Phenix Raceway, 2006 Opelika Rd., Phenix City, AL 36867; Casey Hoover, (205) 297-0040



Piedmont R/C Superspeedway, 41 Jewel Lane, Oxford, AL 36203; Terry Young or Greg Gaines, (205) 831-2986 or 831-1666



R/C Hi-Tech Raceway, 3303 Meridian St., Huntsville, AL 35811; Rick Chambers, (205) 539-1347



Satellite Hobbies, 2799 Rose Rd., Albertville, AL 35950; Troy or Jerry Smith, (205) 878-2526



Spring Cove Speedway, Rt. 1, Box 95, Florence, AL 35630; Chuck or Lyda Syppolt, (205) 757-5998



ALASKA

ARCORR, 2812 Spenard Rd., Anchorage, AK 99503; Jim Raffuse, (907) 277-7778



McKinley Hobby & Raceway, 2300 McKinley Dr., Wasilla, AK 99654; (907) 376-9351



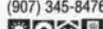
Seth's Speedways, 3400 Hiland Dr., Anchorage, AK 99504; Seth Graham, (907) 337-3777



Southtown Hobby & Raceway, 12001 Industry Way #2, Anchorage, AK 99515; Bob or Vickie Peters, (907) 445-3131



Stump Hobby & Track, 13651 Jarui, Anchorage, AK 99504; Don Stump, (907) 345-8476



ARIZONA

Economy One-Stop Raceway, 4000 S. 4 Ave., Yuma, AZ 85366; (602) 344-3514



Finish Line Raceway, 7025 E. 21st St., Tucson, AZ 85710; Jerry Kikkert, (602) 747-3633



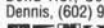
G&S Raceway, 967 Hancock, Bullhead City, AZ 86442; Bob Olsen, (602) 758-1100



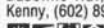
Havasu R/C Raceway, 1081 Desert View Dr., Lake Havasu City, AZ 86403; Bernie Coates, (602) 680-6304



HobbyTown Raceway, 9180 E. Indian Bend Rd., Scottsdale, AZ 85250; Dennis, (602) 948-3946



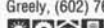
HobbyTown Raceway, 1915 East Baseline Rd., Gilbert, AZ 95234; Kenny, (602) 892-0405



HobbyTown Speedway, 2814 W. Bell Rd., Phoenix, AZ 85023; Mike Kaminski, (602) 993-0122



Outlaw Raceway, 5309 Lakewood Rd., Ft. Mohave, AZ 86427; Frank Greely, (602) 768-5001



Parker 4-H R/C Raceway, P.O. Box 5342, Parker, AZ 85344; Bill Silvers, (602) 667-4246



R/C Raceplex, 5222 W. Glendale Ave., Glendale, AZ 85301; Bill Murray, (602) 934-5567



R/C Sports Mania, 3550 N. 35th Ave., Phoenix, AZ 85017; Brian Dick, (602) 278-3671



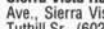
Race Prep Raceway, 852 S. Hwy. 89, Chino Valley, AZ 86323; Mike Dunn, (602) 636-1955



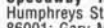
Scale Racing Sports, 1120 N. Hayden Rd., Tempe, AZ 85281; Mike, (602) 829-9117



Sierra Vista Raceway, 105 N. Central Ave., Sierra Vista, AZ 85635; Wayne Tuthill Sr., (602) 459-1335



Speedway Hobbies, 1000 N. Humphreys St., #204, Flagstaff, AZ 86001; Gary McAllister, (602) 556-0710



Winslow Raceway, 813 E. 3rd St., Winslow, AZ 86047; Shawn Wilkie, (602) 289-2192



ARKANSAS

Arkansas Int'l. Superspeedway, P.O. Box 1636, Pine Bluff, AR 71613; Joe Pitts, (501) 247-2371



DCA Racing, 412 Hiway & 14th St., Paragould, AR 72450; Lyle Spillman, (501) 236-9706



Performance Hobbies, 2222 Spence, Jonesboro, AR 72401; (Rick) Winningham, (501) 935-6501

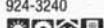


CALIFORNIA

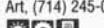
Appletree Raceway, 1303 Hermosa Ave., Pacifica, CA 94044; Sonny Day, (415) 359-9755



ARO Hobbies Raceway, 24275 Sunnymead, Moreno Valley, CA 92553; George or Mike Kileen, (714) 924-3240



Art & Dean Raceway, 29409 Haguest, Lake Elsinole, CA 92530; Art, (714) 245-0920



Bob & Jim's R/C World, 3485 University Ave., Riverside, CA 92501; Bob Parcell, (714) 684-6314



Brake-a-Way Raceway, 3179 Hamner Ave., Norco, CA 91760; Debbie Burrie, (714) 736-6063



California Auto Racers (CAR), 96 San Tomas Aquino Rd., Campbell, CA 95008; Club Message Line, (415) 508-9971



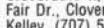
Cats West Raceway, 5631 Old Lonetree Way, Antioch, CA 94509; Jerry Winkelbaver, (510) 779-0505



City Speedway, 7750 Convoy Ct., San Diego, CA 92111; (619) 560-9633



Cloverdale R/C Raceway, 1 Citrus Fair Dr., Cloverdale, CA 95425; Tom Kelley, (707) 586-9789; track, (707) 894-4468



Covina Racing Company, 1611 W. San Bernardino Rd., Covina, CA 91722; Tom, (818) 331-4984



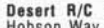
Cycle Art Raceway, 2211 N. Pleasant Way, Fresno, CA 93705; Richard De Benedictis, (209) 233-3665



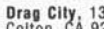
D&D Raceway, 290 S. First St., Turlock, CA 95380; Dave Miller, (209) 667-0970



Desert R/C Raceway, 9231 E. Hobson Way, Blythe, CA 92225; Rodney Lazenby, (619) 922-5516



Drag City, 1361 W. Valley Blvd., Colton, CA 92324; Chris Gabriel, (714) 370-0580



Fast Eddie's R/C Raceway, 3261 Edward Ave., Santa Clara, CA 95054; Eddie Aflague, (408) 986-8256



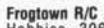
Fast Lane, 25845 San Fernando Rd., #21, Saugus, CA 91350; (805) 255-2404



The Finest R/C Off-Road Circuit, 8711 Elder Creek Rd., Sacramento, CA 95820; Jason, (916) 381-6555



Frogtown R/C Raceway, Motherlode Hobbies, 3069 Hwy. 49, Angels Camp, CA 95222; (209) 736-4989



Gina's R/C Palace, 1839 Olympus Loop Dr., Vista, CA 92083; Gina Garner, (619) 598-8069



G.L.A.R.C.R.C., Whittier Narrows Park, Rosemead, CA 91770; Jon D'Angiolillo, (310) 944-0870



Greater Los Angeles R/C Racing Club, California State University, Parking Lot A, Los Angeles, CA 90045; Glenn Williams, (213) 734-7888 or Tom Wong, (310) 821-5472



Hayes Raceway, 628 Walnut Ave., Patterson, CA 95363; Andy Hayes, (204) 892-5080

Hobbycrafters, 1319 Pacific Blvd., Oceano, CA 93445; Craig or Damian, (805) 481-3883

Hobby Haven Raceway, 3983 First St., Livermore, CA 94550; Tom Welding Jr., (510) 443-5828

Hobbytown Raceway, 1330 Keystone Way, Vista CA 92083; Bryan Bahlmann, (599-0456)

Hobby Warehouse, 5500 So. Watt, Sacramento, CA 95828; Roger Hubbard, (916) 381-7587

Jackman's R/C Raceway, 1616 N. Beale Rd., Marysville, CA 95901; Bonnie or Harry Jackman, (916) 741-3744

JD Hobbies, 1009 W. College Ave., Santa Rosa, CA 95401; Mike, (707) 571-1700

K&M R/C Raceway, 22474 A Barton Rd., Grand Terrace, CA 92324; Mike Blake, (714) 783-0899

The Land of R/C, 2717 Gerber Road, Suite B, Woodland, CA 95695; Le Forrest, (916) 666-1699

Lethal Weapon Raceway, 108 Karen Ct., Arumas, CA 95004; Jerry Seagraves, (408) 726-3642

Lindsey's R/C Raceway, P.O. Box 443, Doyle, CA 96109; (916) 827-2457

Lucerne Valley Raceway, 32800 #4 Old Woman Springs, Lucerne Valley, CA 92356; Frank Rodrigue, (619) 248-7305

M.B. Raceway, 1031 Fremont, Alhambra, CA 91801; Tony or Dave, (818) 284-4198

Merced R/C Auto Racers (MRCAR), 1652 W. North Bearcreek Dr., Merced, CA 95348; Ed Lopez, (209) 725-8040

Mn Hobbies, 137 N. Vander, Corona, CA 91720; Don Hughes, (909) 272-3545

One-Stop Raceway, 3782 Cerritos Ave., Los Alamitos, CA 90720; (213) 493-7597

Outlaw R/C Hobbies, 7920 Webster, Highland, CA 92346; Rick James, (909) 864-1770

Pegasus Raceway, 14643 Hawthorne Ave., Fontana, CA 92336; Ern Dog, Bob Cat, (909) 822-0226

Perris Recreation R/C Track, 120 N. Perris Blvd., Perris, CA 92370; Len or Fay Shirley, (714) 943-6603 or 657-4879

Pole Position Speedway, 43719 Sierra Hwy., #A, Lancaster, CA 93534; Pete, Cory, or Rick, (805) 947-4513

R/C Off-Road Raceway, 10810 Talbert Ave., Fountain Valley, CA 92708; Jeff Paul or Bob Fiege, (714) 965-9615

R/C Speedway and Hobbies, 1453 North Milpitas Blvd., Milpitas, CA 95035; Mike Melai, (408) 263-4228

R/C Racing Center and Hobbies, 9842 Channel Rd., Lakeside, CA 92040 (San Diego County); Russ or Cindy Escalera, (619) 443-2270

R/C Sports, 759 E. Monte Vista Ave., Vacaville, CA 95688; (707) 446-5555

R/C World, 5759 E. Fountain Way, Fresno, CA 93727; Brian Gaynor, (209) 348-9409

The Race Place, 13564 E. Imperial Hwy., Unit G, Santa Fe Springs, CA 90670; (213) 926-7711

Race Prep Raceway, 20115 Nordhoff, Chatsworth, CA 91311; Steve Dunn, (818) 709-6800

Racer's Haven Hobby, 7401 White Ln., #9, Bakersfield, CA 93389; Martin Buchanan, (805) 835-0441

KEY TO SYMBOLS

- Indoor
- Outdoor
- Off-road
- Oval
- Dirt oval
- Carpet
- Concrete
- Asphalt
- On-site hobby shop
- AC power
- Auto lap-counting
- Food available

Track Directory

Radio-Controlled Hobbies. 2011 Placentia Ave., Costa Mesa, CA 92630; (714) 631-1555



Radlowave Hobbies. 4572 Telephone Rd., Ventura, CA 93003; Al Young, (805) 642-0390



RAMS. Murco Plaza, Paseo Padre Pkwy. & Mowry East, Fremont, CA; Mike Alton, (510) 490-8734



Ranch Pit Shop. 1655 E. Mission Blvd., Pomona, CA 91766; Billy Bowlerman, (909) 623-1506



RCRC Hobbies. 2069 Pacific Coast Hwy., Lomita, CA 90717; Rhea & Cliff Fisher, (310) 530-7272



Rick's R/C Speedway. 217 3rd St., Eureka, CA 95501; Rick Hynard, (707) 445-3341



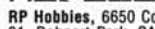
Ricky Racers. 14568 Arrow Hwy., Fontana, CA 92335; Kevin, (909) 822-0226



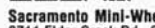
Robin's Racing World. 1844 W. Glenoaks, Glendale, CA 91201; (818) 240-2093



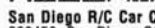
Roy's Raceway. 368 E. 11th St., Tracy, CA 95516; (209) 836-3513



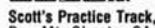
RP Hobbies. 6650 Commerce Blvd., Rohnert Park, CA 94928; (707) 586-3375



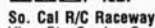
Sacramento Mini-Wheels Raceway. 8711 Elder Creek Rd., Sacramento, CA 95828; Paul Schliager, (916) 383-4011



San Diego R/C Car Club. P.O. Box 232456, San Diego, CA 92193; (619) 560-0089



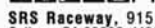
Scott's Practice Track. 1131 Ramona St., Mt. Shasta, CA 96067; Scott Cleveland, (916) 926-1012



So. Cal R/C Raceway. 11930 Valley View St., Garden Grove, CA 92645; Jim Blauvelt, (714) 892-0088



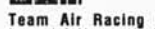
Square Roundhouse R/C Speedway. 1468 Lander Ave., Turlock, CA 95380; (209) 668-4454



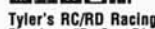
SRS Raceway. 915 N. Main St., Salinas, CA 93906; (408) 424-4044



Tanforan Action Track. Tanforan Shopping Center, San Bruno, CA 94066; Jerry Imboden, (415) 583-2683



Team Air Racing Club. 18208 Imperial Hwy., Yorba Linda, CA 92686; Don or Nicky, (714) 579-7488



Tyler's RC/RD Racing Center. 6865 Flanders Rd., San Diego, CA 92121; (619) 597-3072



Valley R/C Race Park. 146 S. Santa Fe St., Hemet, CA 92344; Valley Wide Recreation, (714) 654-1505 or 658-4322



Ventura Road Runners/Freedom Park Raceway. 520 Freedom Park, Camarillo, CA 93010; Les Abramson, (805) 484-8920 or Ed Haney, (805) 499-8266



Victory Speedway. 22960 Victory Blvd., Woodland Hills, CA 91367; Bob Sarnelle, (818) 888-9000



White Mountain R/C Raceway. 174 West Line, Bishop, CA 93514; (619) 872-1599



Zero'n'4 Hobbies. 3360 S. Fairway, Visalia, CA 93277; Eddie McKay, (209) 733-1840



COLORADO

Colorado R/C Speedway. 6520 Wadsworth Blvd., #130, Arvada, CO 80003; (303) 425-1718



J.P.'s Raceway. P.O. Box 933, Ignacio, CO 81137; Jim A. Paul, (303) 563-0025



MHOR R/C Raceway. 15540 E. Batavia Dr., Aurora, CO 80011; Jess Brockman, (303) 343-0151



Miracle R/C Speedway. 4206 Wadsworth Blvd., Wheatridge, CO 80034; Rob Brossman, (303) 420-3051



R/C Mini Sports. 6401 Broadway, Unit G, Denver, CO 80223; John Weins, (303) 426-0110



R/C World & Track. 2788 S. Federal Blvd., Denver, CO 80236; (303) 789-0838



Rocky Mountain R/C Raceway. 5737 Constitution Ave., Colorado Springs, CO 80915; Lee Seigel, (719) 550-1777

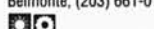


CONNECTICUT

Crafttech Raceway. Navsubase Nlon Box 14, Bldg. 460, Groton, CT 06349; Dave or Tony, (203) 449-3217



CT R/C Off-Roaders. behind Old Field School, Fairfield, CT 06430; Mike Belmonte, (203) 661-0145



Hobby World Raceways. 161-6 Woodford Ave., Plainville, CT 06062; (203) 793-1111



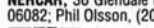
JP's Hobbies & Track. 54 Wakelee St. Ext., Seymour, CT 06483; (800) 547-5772



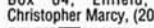
K/N R/C Speedway Inc. West St., Stafford Springs, CT 06076; (203) 684-9896



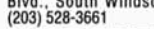
NERCAR. 36 Glendale Rd., Enfield, CT 06082; Phil Olsson, (203) 627-5410



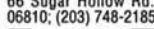
R/C Madness. 640 Enfield St., P.O. Box 64, Enfield, CT 06082; Christopher Marcy, (203) 741-6501



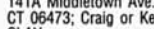
R/C Raceways Inc. 1265 John Fitch Blvd., South Windsor, CT 06074; (203) 528-3661



R/C World/Sugar Hollow Speedway. 66 Sugar Hollow Rd., Danbury, CT 06810; (203) 748-2185



SCORA/Clayton's Off-Road Racing. 141A Middletown Ave., North Haven, CT 06473; Craig or Keith, (203) 234-CLAY



Wallingford Indoor Racing. 63 N. Cherry St., Wallingford, CT 06492; (203) 265-3939



DELAWARE

Hobby Works Raceway. Hamlet Shopping Center, Dover, DE 19901; Steve or Gordon, (302) 674-9123



Kennedy's East Coast Speedway. 311B West Dupont Hwy., Millsboro, DE 19966; Russ Kennedy, (302) 934-1708



Mills Raceway. RD 2 Box 830-8, Milford, DE 19963; Mike Roe, (302) 422-6766



T&C Raceway. Rt. 113 South, Georgetown, DE 19947; Sam Thompson Jr., (302) 856-3804



T.N.T. Hobbies & Raceway. 609 Stein Hwy., Seaford, DE 19973-0464; Thorpe Shatney, (302) 628-0520



FLORIDA

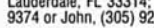
B+T R/C Central. 811 Playground Rd., Ft. Walton Beach, FL 32547; (904) 863-2666



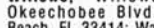
Branford R/C Speedway. Rt. 3, Box 240, Branford, FL 32008; (904) 935-0758



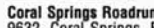
Broward County R/C Race Club. 2201 NW 9th Ave., Mills Pond Park, Ft. Lauderdale, FL 33314; Ed, (305) 480-9374 or John, (305) 925-8284



Challenger Speedway at the Willows. Willows Park & Okeechobee Blvd., Royal Palm Beach, FL 33414; Walt, (407) 965-2790 or Mark, (407) 790-6917



Coral Springs Roadrunners. P.O. Box 9632, Coral Springs, FL 33075; Tom Allison, (305) 721-0344 or Rick Schwartz, (305) 344-1983



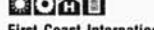
Doc's Indoor R/C Raceway. 16803 US 19N, Clearwater, FL 34624; Steve "Doc" Wacholz, (813) 824-7702



5-11ty-5 Raceway. 125 Second Terrace West, Winter Haven, FL 33880; Chuck Nolke, (813) 324-7406



First Coast International Speedway. P.O. Box 1342, Jacksonville, FL 32201-1342; Bob Thompson, (904) 743-2161



FYRE. 14160 Hwy. 441 (River Plaza), Tavares, FL 32728; Ray Salerno, (904) 357-1635



Gainesville R/C Speedway. 9311 SW 75 Way, Gainesville, FL 32608; Greg Rhodes, (904) 495-3600



Greater Orlando Auto Racers. 970 Keller Rd., Altamonte Springs, FL 32714; Dave Mottin, (407) 293-7090



H&H Raceway. 4121 S. Tamiami Tr., Sarasota, FL 34231; (813) 922-7711



Hialeah Hobby Raceway. 4562 W. 12 Ave., Hialeah, FL 33015; (305) 826-3702



Sun Valley Speedway. Palmer Blvd., Sarasota, FL 34232; (813) 322-1200; (mailing address: Rt. 1, Box 443N, Myakka City, FL 34251)



Three Flags R/C Racetrack. Rt. 2, Box 48-A, Wildwood, FL 34785; Don Meares, (904) 748-3870



TJ's R/C Raceway & Hobby Shop. 1010 Creighton Rd., Pensacola, FL 32504; John Jogan, (904) 479-2330



Treasure Coast R/C Club. 4931 Oleander, Fort Pierce, FL 34982; Lou, (407) 464-3207

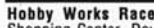
West Coast R/C Club. Lake Park, 17203 N. Dale Marry, Tampa, FL 33549; Tim, (813) 932-3650; Bob, (813) 239-9630

Wilbur Avenue Raceway. 1848 Wilbur Ave., Vero Beach, FL 32960; (407) 567-1200

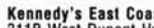
GEORGIA

A.R.C. Raceway. 350 Shyrewood Dr., Lawrenceville, GA 30243; (404) 962-6194 or 962-8921

ARCAR Raceway. 6894 Buford Hwy., Doraville, GA 30340; Greg Coan, (404) 448-4533



Carnesville R/C Speedway. Rt. 2, Box 2354, Carnesville, GA 30521; Bobby Maxwell or Byron Sartain, (404) 384-4870 or 384-4587



Case R/C Raceway. P.O. Box 1061, Trenton, GA 30752; (404) 657-6789



Dalton Raceway. 2300 Chattanooga Rd., Dalton, GA 30720; (404) 226-6699



Georgia Hobby Center. 112 Kenwood Rd., Fayetteville, GA 30214; (404) 460-1753



Good Life City Raceway. 6606 Newton Rd., Albany, GA 31707; (912) 888-2515



Lake Mayer Raceway. 1 Melinda, Savannah, GA 31460; Phil Hurd, (912) 355-6033



Middle GA Slot Car. 1805A Watson Blvd., Warner Robins, GA 31088; Larry Tucker, (912) 922-RACE



PDQ Raceway & Hobbies. 341 Senola Rd., Peachtree City, GA 30269; Richard Burdett, (404) 631-1788



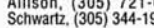
The Racer's Edge. 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Walls, (706) 648-2637, (706) 648-6534



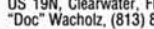
Sandy Cross Speedway. Rt. 1, Box 1073, Royston, GA 30662; Morris Phillips or Wayne Fowler, (404) 245-9573



Silver Wings Raceway. 5611 Riverdale Rd., College Park, GA 30349; (404) 991-2225

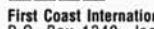


Sugar Bowl R/C Speedway. 5272 North Ave., Sugar Hill, GA 30518; Shelley or Jan Bailey, (404) 945-6709



HAWAII

K/M's Hobbies. 2305 Jasmine St., Honolulu, HI 76816; George Mirikiana, (808) 757-7135



Radio-Controlled Hobbies. 2011 Placentia Ave., Costa Mesa, CA 92630; (714) 631-1555



Radlowave Hobbies. 4572 Telephone Rd., Ventura, CA 93003; Al Young, (805) 642-0390



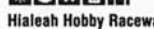
RAMS. Murco Plaza, Paseo Padre Pkwy. & Mowry East, Fremont, CA; Mike Alton, (510) 490-8734



Ranch Pit Shop. 1655 E. Mission Blvd., Pomona, CA 91766; Billy Bowlerman, (909) 623-1506



RCRC Hobbies. 2069 Pacific Coast Hwy., Lomita, CA 90717; Rhea & Cliff Fisher, (310) 530-7272



Rick's R/C Speedway. 217 3rd St., Eureka, CA 95501; Rick Hynard, (707) 445-3341



Ricky Racers. 14568 Arrow Hwy., Fontana, CA 92335; Kevin, (909) 822-0226



Robin's Racing World. 1844 W. Glenoaks, Glendale, CA 91201; (818) 240-2093



Roy's Raceway. 368 E. 11th St., Tracy, CA 95516; (209) 836-3513

Koha R/C Racing, 74-5563 Kaiwi St., Kailua-Kona, HI 96740; Hobby-Tronics, (808) 329-3072



R/C Motorsports Hawaii, 98-029 Kekaha St., Alea, HI 96701; Lane Petrich, (808) 487-5155



Team PRC Racing Club, Pahoa Government Rd., Pahoa, HI 96778; Charlie Kawamoto, (808) 965-8216



IDAHO

Capital Dirt Burners, 1945 N. Teare Ave., Meridian, ID 83642; Jim Brandon, (208) 888-7079



Dapco Hobbies, 2211 Garrett Way, Pocatello, ID 83201; Pat Talbert, (208) 233-8163



Falls Hobbies & R/C Raceway, 1515 Northgate Mile, Idaho Falls, ID 83401; (208) 529-8650



MARA, 1229 Burrell, Lewiston, ID 83501; Rich Law, (208) 743-4141



Victory Speedway, 5416 Anna St., Boise, ID 83705; Bruce Wallace, (208) 343-3113



ILLINOIS

Adam's Blast Track, RR 1, Box 370, Ashmore, IL 61912; John Deffenbaugh, (217) 349-8447



AJ's Raceway, Kesslinger Road, Dekalb, IL 60115; A.J. Schultz, (815) 756-2772



Ameri-Trac, R3, Box 242, Mattoon, IL 61938; (217) 234-8707



Badlands II, 320 W. Jackson St., Vandalia, IL 62471; (618) 283-2913



BARR, 809 River Dr., Byron, IL 61010; Jim Haynes, (815) 234-5615



C&R Hobbies, 39 E. Jones, Milford, IL 60953; Ray Craighead, (815) 889-4073



Centennial Park/LeMont Dirt Burners, 7827 Rohrer Dr., Downers Grove, IL 60516; Scott Moravik, (708) 968-6411



Central Illinois R/C Car Club, 7015 N. Knoxville Ave., Peoria, IL 61614; Wayne Thompson, (309) 693-8885 or R/C Workshop, 3100 S.W. Adams, Peoria, IL 61605; (309) 673-4860



Central R/C Raceway, RR 2, Box 51-A, Carlinville, IL 62626; Tim Stewart, (217) 854-9718 or Don Rice, (217) 854-3785



Diehard R/C Raceway, 300 N. Main, Kewanee, IL 61443; Dick Jennings, (309) 852-3700



Eagle Speedway, 303 N. Plum St., Pontiac, IL 61764; Joe or Vickie Bachman, (815) 842-1738



4-H Park Raceway, P.O. Box 774, Pontiac, IL 61764; Joe or Vickie Bachman, (815) 842-1738



Hobby Raceway, 5027 4th Ave., Moline, IL 61265; Tony, (309) 755-5534



Hobby Town Raceway, 4611 W. Rt. 120, McHenry, IL 60050; Mike Hollingsworth, (815) 344-1777



Howell Racing, 492 Egret Ave., Naples, IL 33963; PJ Howell, (708) 474-8821



JC Hobbies/Metro Motor Speedway, Metropolis Airport, Metropolis, IL 62960; (618) 524-9979



JMP Raceway, 952 Harrison Ave., Wood River, IL 62095; (618) 258-0297 or -0282



Lakeside Raceway, S. Germantown Rd., Breese, IL 62230; Scott Merian or Alan Poettiker, (618) 526-4861 or 654-2211



Leisure Hours Hobbies, 2872 Plainfield Rd., Joliet, IL 60435; (815) 439-1477



Lisle Community Park Raceway, 1825 Short St., Lisle, IL 60532; Jim Bernicky, (708) 416-6944



M&E Hobbies & Raceways, 300 N. Milwaukee Ave., Lake Villa, IL 60046; Mark Kaye, (708) 356-3224



Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311



Magnum R/C Speedway, RR #2, Box 399, Danville, IL 61832; Terry & Nancy Dines, (217) 446-2472



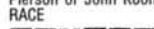
Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441



Mercer Co. R/C Off-Road, RR 3 Box 259, Milan, IL 61264; Jamie Wagal, (309) 534-8324



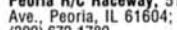
Midwest Hobby Trax, 114 Kirkland Cr., Unit A, Oswego, IL 60543; Duane Pierson or John Koonce, (708) 978-9782



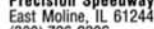
Monee R/C Raceway, 26049 Ridgeland Ave., Monee, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597



Peoria R/C Raceway, 518 Hillsdale Ave., Peoria, IL 61604; Ray Tighe, (309) 672-1780



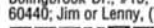
Precision Speedway, 3919 17 St., East Moline, IL 61244; Dan Kennedy, (309) 796-2226



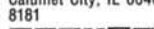
The R/C Track, 15022 S. Artesian, Harvey, IL 60426; Edmund Johnson, (708) 331-4079



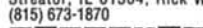
Radio Active Raceways, 751 N. Bollingbrook Dr., #15, Bollingbrook, IL 60440; Jim or Lenny, (708) 759-7557



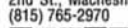
Redline Raceway, 921 Harding, Calumet City, IL 60409; (708) 862-8181



Rick's R/C Raceway, 122 W. 12th St., Streator, IL 61364; Rick Wallace, (815) 673-1870



Rockford Scale Raceway, 6900 N. 2nd St., Machesney Park, IL 61111; (815) 765-2970



SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885



Slot Wing Hobbies Race Place, 1615 W. Springfield, Champaign, IL 61821; (217) 359-1920



Smithton Community Park, P.O. Box 8152, Belleville, IL 62221; (618) 236-7569



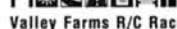
Superior Raceway, 1706 W. Bradley, Champaign, IL 61821; (217) 359-8073



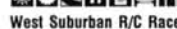
Thunderroad Speedway, Intersection of Broadway and Division, Coal City, IL 60416; (815) 634-8050



Tri-Star Racing, 3710 B. Hwy. 111, Pontoon Beach, IL 62040; Skip Bornmueller, (618) 931-1206



Valley Farms R/C Raceway, 706 Bypass 20, Cherry Valley, IL 61016; (815) 332-4516



West Suburban R/C Raceway, 44 S. Villa Ave., Villa Park, IL 60181; Calvin Bruce, (708) 834-7223



INDIANA

Autograph/Race World, 231 Pendleton Ave., Pendleton, IN 46064; Sam Mudd, (317) 778-3386



BJ's Riverside Raceway, 265 S. Clay St., Jasper, IN 47546; Joe Lorey, (812) 482-3484



Blaze'n Race'n, P.O. Box 6, Hamlet, IN 46532; James Berndt, (219) 867-1324



Boone County Raceway, 1300 E. 100 S. Rd., Lebanon, IN 46052; Jerri Moss or Allan Luper, (317) 482-4827



CC Hobby & Speedway, RR 1, Box 68, Francesville, IN 47946; (219) 567-2447



Classic Hobbies, 420 E. Commercial, Lowell, IN 46356; David Scheffler, (219) 696-0649



Clayhorn II, RR 4, Box 3521, Veedsburg, IN 47987; Mike Rogers, (317) 295-2582



County Line R/C, 2333 W. State Rd. 38, Sheridan, IN 46069; Greg Welch, (317) 758-6393



Elliott's R/C Raceway, 2140 North Plate, Kokomo, IN 46901; (317) 452-0163



Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802-9694; (812) 299-5773



Hobby Masters, 8501 Bash, Indianapolis, IN 46250; Jim Price, (317) 576-1961



The Hobby Prescription, 115 S. Indiana Ave., Auburn, IN 46706; Roxanne Fike, (219) 925-6699



Hobby World Raceway & Hobbies, 1508 N. Harlan, Evansville, IN 47711; Jeff Wassman, (812) 421-1100



Jam Raceway, 261 E. Main St., Bunker Hill, IN 46914; Jami Casavan, (317) 689-7507



K&L Hobbies & Raceway, 3275 North 525W, LaPorte, IN 46350; (219) 324-0353



Kokomo Hobby & Radio Raceway, 1108 E. Markland, Kokomo, IN 46901; (317) 457-5060



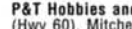
Main Hobbies, 625 Columbia, Lafayette, IN 47901; Randy Palmer, (317) 742-2045



Mooresville R/C Hobby, 7 Moore St., Mooresville, IN 46158; (317) 831-8877



Mooresville R/C Hobby, 9201 S. State Rd. 67, Camby, IN 46113; (317) 831-8877



P&T Hobbies and Raceway, RR 2 (Hwy 60), Mitchell, IN 47446; Paul Weber, Tom Logsdon, (812) 849-6666; fax, (812) 332-0018



R/C Barn, 310 N. 125 W., Monroe, IN 46772; Mark Lengerich, (219) 692-6600



R/C World of Indiana, RR #2, Box 335, Lynn, IN 47355; (317) 874-2464



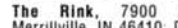
R/C Zone & Raceway, 6380 W. 34th St., Indianapolis, IN 46224; Russ or Greg, (317) 290-0067



Race St. Raceway & Hobby, 11261/2 Race St., New Castle, IN 47362; John or Nancy Strong, (317) 521-4888



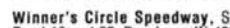
Raceway Park, 919 E. McKinley, Mishawaka, IN 46545; Bob Bean, (219) 256-1020



The Rink, 7900 Whitcomb, Merrillville, IN 46410; Don Reiner, (219) 769-8113



Runway Hobbies Raceway, 5342 Elmwood, St. J. Indianapolis, IN 46203; Randy Hyatt, (317) 784-2421



Winner's Circle Speedway, State Road 10 and 55, Roselawn, IN 46310; Harold Holmes, (219) 987-4106



IOWA

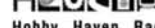
Barnyard Raceway, RR1, Box 243, Plainfield, IA 50666; Fred Good, (319) 276-4825



Devil's Valley, 919 4th Ave. So., Clinton, IA 52732; (319) 243-7516



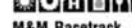
Dubuque R/C Speedway, Dubuque County Fairgrounds, Dubuque, IA 52001; Paul Conlon, (319) 556-2736



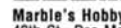
Hobby Haven Raceway, 7672 Hickman Rd., Des Moines, IA 50322; Brian Oakley, (515) 276-8785



Kodiak Race Track, Box 78, Okoboji, IA 51355; Brad or Dave, (712) 332-7982



M&M Racetrack, 2434 Pilgrim Path, Oskaloosa, IA 52577; (515) 673-6265



Marble's Hobby Supply, 4685 SE 40th St., Des Moines, IA 50320; Rick Marble, (515) 262-7507



Mr. Car Raceway, Central Iowa Fairgrounds, Marshalltown, IA 50158; (515) 483-2234



North Park R/C Speedway, 805 S. Jerome, Algona, IA 50511; (515) 295-9352



Plymouth County R/C Speedway, 4th Ave. NE (Plymouth County Fairgrounds), LeMars, IA 51031; (712) 546-8788 or 546-9522



Power House Racing, 1200 S. Division St., Creston, IA 50801; (515) 782-4582 or 782-4174



Rotunda Raceway, 101 Bass, RR 1, Box 155A, Storm Lake, IA 50586; (712) 732-4555



Sibley Raceway, Osceola County Fairgrounds, Sibley, IA 51249; Allen Reck, (712) 754-2604



Southwest Iowa R/C Raceway, Kelly Park, Red Oak, IA 51566; (712) 623-5513



Southwest Iowa R/C Raceway, Montgomery County Fairgrounds, Red Oak, IA 51566; (712) 623-5513



Spenser R/C Raceway, 419 Grand Ave., Spenser, IA 51301; Steve or Mike, (712) 262-2603 or -7864



Team Johnson Speedway, Jct. Hwy. 34 & 406, West Burlington, IA 52655; (319) 753-0753



KANSAS

Track Directory

KENTUCKY

A&J Raceway, Hc-64, Box 322-A, Lily, KY 40740; Al Smith, (606) 523-9710



Bluegrass Int'l/Perry's R/C Hobbies, 214 Globe St., Radcliff, KY 40160; William Perry, (502) 351-RACE



East Kentucky Hobby Raceway, Hwy. 15, Garner Mt., Isom, KY 41824; (606) 633-8567



Fast Lane Hobbies & Raceway, 281 Porter Pike, Bowling Green, KY 42101; Greg Bailey, (502) 782-2419



Hobby Center Inc., 2106 Triplett St., Owensboro, KY 42303; Bobby Howell, (502) 683-7611



Hobbys Plus, 819 Main St., Hazard, KY 41701; Joe Mavaro, (606) 436-3175



The Lexington Autodrome Raceway, 2753 Richmond Rd., Lexington, KY 40509; (606) 269-7794



Lexington Model Shop Raceway, 211 New Circle Rd., Lexington, KY 40505; Billy Dent, (606) 293-2951



ProTrax R/C Racing, 3451 Cane Run Rd., Louisville, KY 40211; Tony Hardin, (502) 778-2657



Remote-Control Hobby Shop/Raceways, Rt. 8, Box 211, Mayfield, KY 42066; (502) 247-4715



River Cities Raceworld, 1104 Powell Ln., Flatwoods, KY 41139; (606) 836-CARS



Tri-City R/C Raceway, 2420 Riggall St., Ashland, KY 41101; Eddie Williams, (606) 324-6305.



West Kentucky R/C Cars, 45 Hawkins Loop, Symsonia, KY 42082; (502) 851-3534



LOUISIANA

Acadiana R/C Hobbies & Raceway, 120 Toledo Dr., Lafayette, LA 70506; (318) 235-5825



Baha Raceways, 2225 Hickory Ave., Harahan, LA 70123; Bruce or Dan Rodriguez, (504) 737-6988



Cajun R/C Raceway, Rt. 2, Box 288 (Hwy. 343, Bosco) Church Point, LA 70525; Ray Thibodeaux, (318) 873-3855



Cajun R/C Raceway, 110 A Darbonne, Sulphur, LA 70663; Sandy Thibodeaux, (318) 527-9129



Loupe's R/C, 888A Madeline Ct., Baton Rouge, LA 70815; Mark Loupe, (504) 927-6275



Performance Hobby Raceway, 9135 W. Judge Perez Dr., Chalmette, LA 7004; Guy Trentecosta, (504) 271-2468



Red Dirt Raceway, 324 Pitkin Rd., Leesville, LA 71446; CJ Hall, (318) 535-9238



Red River R/C, 3232 East 70th, Shreveport, LA 71105; Pete Bradford or Ken Adcock, (318) 424-6325 or 929-7378



MAINE

Central Maine R/C Speedway, 18 Lithgow St., Winslow, ME 04901; David Prescott, (207) 877-2232



Clay Bowl R/C Hobbies, P.O. Box 61, Greene, ME 04236; Pat Cap, (207) 946-5003



Sabattus R/C Raceway, 247 Gardiner Rd., Sabattus, ME 04280; Larry Desrosiers, (207) 225-2027



Hobbys Plus, 479 Elm St., Biddeford, ME 04005; John Williams, (207) 282-8838



Lake Region R/C Raceway, Route 302, Bridgton, ME 04009; George Kosiavelan, (207) 647-8831



Mementos Hobby Shop, 86 Sweden St., Caribou, ME 04736; (207) 498-3711



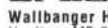
Rocket R/C Hobbies, Annabessacook Rd., Winthrop, ME 04364; (207) 377-6910



Sanford Speedway, 479C Elm St., Biddeford, ME 04005; (207) 282-8838



The Racers' Club, 85 Hubbard Rd., Berwick, ME 03901; (207) 698-5337



Wallbanger Heaven, 50 Elm St., Houlton, ME 04730; Jack Newman, (207) 532-3169



MARYLAND

ABC Raceway, 2825 Ocean Gateway, Cambridge, MD 21613; (301) 228-4291



Bel Air R/C Raceway, 227G Gateway Dr., Bel Air, MD 21014; Jeff Little, (410) 838-1229



Cockeysville Astrodome, 10824 York Rd., Cockeysville, MD 21030; (410) 666-1098



Doug's Hobby Shop Raceway, 2935 Crain Hwy., Waldorf, MD 20601; (301) 843-7774



40 Speedway, 933 Pulaski Hwy., Havre de Grace, MD 21078; Doug or Vince, (410) 538-3135 or 939-3588



Friendship Off-Road Racers, 1531 Florida Ave., Severn, MD 21144; (301) 551-3050



Fruitland Indoor Race Center, 203 N. Fruitland Blvd., Fruitland, MD 21826; Thomas Duncan, (410) 543-4329



Radio Control Cars Inc., 13600-A Annapolis, Bowie, MD 20715; Paul Fauth, (301) 262-1444



Suzie Goose Hobbies, 718 E. Gude Dr., Rockville, MD 20850; (301) 279-2966



The Track, 16806 Oakmont Ave., Gaithersburg, MD 20877; Mimi Wong, (301) 417-9630



MASSACHUSETTS

Archer's Lane R/C Raceway, 118 Washington St. (Rt. 1), S. Attleboro, MA 02730; (508) 399-6762



C&C Hobby & Raceway, 562 Russells Mills Rd., S. Dartmouth, MA 02748; (508) 997-4131



Centerline Hobbies, 167 Corporation Rd., Hyannis, MA 02601; (508) 771-1244



CKS Raceway, 46 Wilbraham St., Palmer, MA 01069; (413) 283-2260



Hi-Tech Hobbies, 1681 Broadway (Rt. 138), Raynham, MA 02767; Ruben, (508) 880-5373



Julio's Hobby & Speedway, 1275 Main St. (Rt. 109) Milis, MA 02767; Ruben, (508) 880-5373



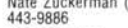
Megadrome Raceway/BRCCR, N. Adams Plaza, Rt. 8, North Adams, MA 01247; Gordon, (413) 663-9593; Richard, (413) 445-4777; Warren, (413) 442-2566



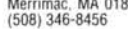
Mike's Speedway, 1210 Federal St. (Rt. 9), Belchertown, MA 01035; Steve or Mike, (413) 253-9312



Naytrix Raceway, Holmes Rd., Pittsfield, MA 01201; Rick Welch or Nate Zuckerman (413) 443-2488 or 443-9886



North East Auto Racers, P.O. Box 12, Merrimac, MA 01860; George Denault, (508) 346-8456



R/C Hobbies & Speedway, 562B Reed Rd., N. Dartmouth, MA 02747; Rick or Dave, (508) 991-5040



West St. Hobbies, 114C Main St., Medway, MA 02053; (508) 533-1231



MICHIGAN

Baja Bayou Off-Road Raceway, 5313 W 22 Mile Rd., Tustin, MI 49688; Mike Langworthy, (616) 829-3447



Can-Am Hobbies Speedway Park, 1152 Gratiot, Marysville, MI 48040; Don Grinde, (313) 364-3338



Central Michigan R/C Raceway, 1270 James Savage, Midland, MI 48640; Mark Siebert, (517) 631-1488



Cereal City R/C Off-Roaders, 2000 E. Columbia Ave., Battle Creek, MI 49015; (616) 963-2506



Chatter Box Racing, P.O. Box 164, Old State Rd., Central Lake, MI 49622; Bill Altermatt, (616) 544-9829



Dirt Slingers Raceway, 2460 S. M139, Benton Harbor, MI 49022; Tom Edwards, (616) 927-1431



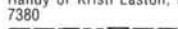
DNR Speedways, 4630 Hill Rd., Harbor Beach, MI 48441; Kelcey, (517) 479-6097



Doug's Dirt Way, 5210 Colby Rd., Owosso, MI 48867; Doug Conn, (517) 723-3368



Elmer's R/C Speedway, 2683 Lakeshore Dr., Niles, MI 49120; Randy or Kristi Easton, (616) 683-7380



Farwell Park Raceway, 2781 E. Outer Dr., Detroit, MI 48234; Eddie McCray, (313) 967-0805



Fun Tyme High-Banked Oval, Fun Tyme Adventure Park, 6295 E. Saginaw Hwy., Grand Ledge, MI 48837; (517) 655-5503



Harrison International Speedway, 3519 N. Clare Ave., Harrison, MI 48625; John Starkweather, (517) 539-2921



JJ's R/C Speedshop, 5645 E. 13 Mile Rd., Warren, MI 48092; (313) 977-0420



JT Superspeedway, 825 Golden Ave., Battle Creek, MI 49017; Jerry or Dan, (616) 965-0571



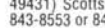
Larry's Performance R/C's, 3430 Highland Rd., Waterford, MI 48328; Larry Rossi, (313) 683-5529



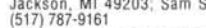
Ludington R/C Raceway, 1483 N. Dennis Rd., Ludington, MI 49431; (616) 843-4654



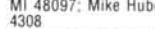
Mason County R/C Car Track, West Shore Community College, (611 N. Washington Ave., Ludington, MI 49431) Scottsville, MI 49454; (616) 843-8553 or 843-4837



MC-RC Raceway, 4601 Page Ave., Jackson, MI 49203; Sam Sprang, (517) 787-9161



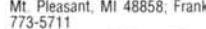
Mike's Raceway, 7 North St., Yale, MI 48097; Mike Huber, (313) 387-4308



NMRCC Raceway, 110 N. Ostego, Gaylord, MI 49735; Ed Schneider, (517) 732-3963



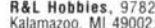
Pointe R/C, 2119 Summerton Rd., Mt. Pleasant, MI 48858; Frank, (517) 773-5711



R&B Raceways, P.O. Box 24, St. Louis, MI 48880; Russ or Brian Weaver, (517) 681-3688 or (517) 463-1886



R&L Hobbies, 9782 Portage Rd., Kalamazoo, MI 49002; Rex Simpson, (616) 323-3686, fax (616) 329-1744



R&S Hobbies & Raceway, 230 Mill St., St. Louis, MI 48801; Rich Beard or Scott Davis, (517) 681-3463



Rad & Bad Raceway, 810 S. Martin Rd., Gladwin, MI 48624; Mick Bushong, (517) 426-4373



Radio Wave Hobbies, 14000 Old 14 Mile Rd., Greenville, MI 48838; (616) 754-2170



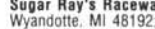
Rider's Superspeedway, 42040 Koppnick, Ste. 400, Canton, MI 48187; Brent Martin, (313) 451-5599



Rider's Superspeedway, 4415 S. Westledge, Kalamazoo, MI 49008; Ken Penn (616) 349-2666



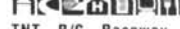
Sugar Ray's Raceway, 1948 Ford, Wyandotte, MI 48192; Ray or Kathy, (313) 281-3520



T/A Raceway, 119 N. Michigan, Big Rapids, MI 49307; Harvey, (616) 796-3217



Thumb Raceway, 3441 S. Main St., Marlette, MI 48453; (517) 635-7848



TNT R/C Raceway, 130 W. Washington St., Marquette, MI 49855; Gregory Berg, (906) 228-4098



USA Raceways, 6803 Dixie Hwy., Bridgeport, MI 48722; (517) 777-7USA



Village Hobbies-n-Crafts, 17824 N. Maple Island, Hesperia, MI 49421; Alan or Fran, (616) 854-1374



MINNESOTA

ABC Raceway, 120 2nd St. NW, Pipestone, MN 56164; Ross Lange, (507) 825-5065



Ceason Sport & Hobby, 312 N. Bdwy, Crookston, MN 56716; Caesar Kaiser, (218) 281-6665



Dr. Skate's R/C Raceway, Frontage Ave., Elk River, MN 56401; Gary Behrens, (608) 788-6141



Greater Minnesota Racin' Place, 3302 Southway Dr., St. Cloud, MN 56301; Jon Jackson, (612) 252-9768



Minn-E-Golf & Hobby, 9100 Park Ave., Elk River, MN 55330; (612) 441-8365



The PBR Off-Road Rally, 721 Cedar Ave., Hector, MN 55342; Philip Zempel, (812) 848-2129



Range Racing World, Inc., 412 Jones St., Eveleth, MN 55734; Bill, (218) 744-4423



Southside Speedway, 2241 Marion Rd. SE, Rochester, MN 55904; Kevin, (507) 281-3233



Squid's R/C Autos, 924 Main Avenue, Moorhead, MN 56560; Jeff Greenwell, (218) 233-3554



Trackside Racing, 2300 Myrtle Ave., St. Paul, MN 55114; Winton Offelie, (612) 644-3424



Track Directory

NEW JERSEY

AI & Rich's R/C Speedway, 90 S. White Horse, Hammonton, NJ 08037; Ray Murray, (609) 561-7584



Dave Bicknell Memorial Raceway, P.O. Box 1445, Absecon, NJ 08201; Rob Caruso, (609) 965-0263



EMC Tracks & Trains, 1235 Rt. 23 South, Wayne, NJ 07470; (201) 628-4838



Family Hobbies Raceway, NW Blvd. & Weymouth Rd., Vineland, NJ 08630; Linda Vogel, (609) 696-5790



Golden Hobbies & Crafts, 415A Erial Rd., Pine Hill, NJ 08021; (609) 782-1222



Hackettstown Family Skating Center, 13 Rte. 57, Hackettstown, NJ 07840; Bob Powers, (908) 852-8726



Jackson R/C Racing, Marshall Ave., Jackson, NJ 08527; (908) 905-1593



LBRA Track, 392 Warburton Pl., Long Branch, NJ 07740; (908) 222-5122



Parlor Hobbies, 34 Broad St., Matawan, NJ 07747; Charlie Roder, (908) 566-3158



Pit Stop Dragway, Campus Rd., Totowa, NJ 07512; Kimberly Frank, (201) 942-5955



Pixley International Speedway, 763 Peters Dr., P.O. Box 189, Martinsville, NJ 08836; Richard Toole, (908) 560-0399



The Race Place, 1151 Hwy. 33, Farmingdale, NJ 07731; John Fary, (908) 938-5215



Radical Raceway, 100 Rt. 17S, Lodi, NJ 07727; Lou, (201) 843-6996



Ricky G's Raceway, 2208A Hamilton Blvd., South Plainfield, NJ 07080; (908) 753-1518



S&M Speedway, 4 Feild Rd., Bedminster, NJ 07921; Lee Spano, (908) 234-2750



Spennell Speedway, 2301 Rte. 9 North, Great American Flea Market, Howell, NJ 07731; Mitch, (908) 577-9191



Tri-Oval Speedway & R/C Center, 296 S. Main St., Phillipsburg, NJ 08865; (908) 454-2223



Truck Challenge, 1162 Rt. 202-206 N., Bridgewater, NJ 08807; Michael Gill, (908) 658-9616



Zeppelin Hobbies, 92 Rt. 23N, Riverdale, NJ 07457; Lou Ballini, (201) 831-7717



NEW MEXICO

Hobby Connection Raceway, 1713 Indian Wells Rd., Alamogordo, NM 88310; Terry Billings, (505) 437-0885



Roswell R/C Raceway, 1004 N. Greenwood, Roswell, NM 88201; Larry Jumper, (505) 623-6693



TRC Race Park, 1303 E. 8th St., Truth or Consequences, NM 87901; Gary Whitehead, (505) 894-3211



NEW YORK

A&D's FasTracks, 1000 N. Main St., Brewster, NY 10509; (914) 279-2065



A&S Race Center & Hobbies, 120 Cayuga St., Canalview Mall, Fulton, NY 13069; (315) 598-2772



Adirondack International, 66 Elm St., Warrensburg, NY 12885; Matt or Jake Wiedman (518) 623-9611



Aldon Speedway, 100 Castle St., Geneva, NY 14456; (315) 789-8343



Brookport Speedway, 6000 Sweden Walker Rd., Brookport, NY 14420; Gil & Betty Glidden, (716) 637-6224



Brownie's Pro & Sport Hobbies, 124 Bennett St., Staten Island, NY 10302-1426; John Brown, (718) 727-2194



Cars, R/C & Guitars, 4360 Seneca St., West Seneca, NY 14224; (716) 674-0905



Capital District R/C Racers, 27 Venus Dr., Albany, NY 12205; Keith Green, (518) 783-7859



Catskill Regional R/C Raceway, Glasco Turnpike, Mt. Marion, NY 12456; (914) 339-3294



Central New York R/C Auto Racers, Martin St., P.O. Box 116, Rome, NY 13440; John Orr, (315) 336-5140



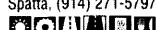
Chipmunk Hill R/C Speedway, 217 Pine St., Theresa, NY 13961; Ted House, (315) 628-5065



Creekside R/C Raceway Park, 5242 Route 228, Trumansburg, NY 14886; Lawrence C. Urdike, (607) 387-5513 after 6 pm.



D&J's Speedway, 94 Maple St., Croton-on-Hudson, NY 10520; Dan Spatta, (914) 271-5797



Daytona Miniature Raceway, 59 Lamar St., W. Babylon, NY 11704; (516) 491-4041



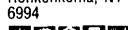
Dirt Track, 17 Fairway Dr., Manorville, NY 11949; Billy Wroblewski, (516) 878-0737



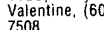
Electric City Speedway, 955 State St., Schenectady, NY 12307; Jim Delyser, (513) 372-7920



Enjoyable Hobbies and Raceway, 260 Ronkonkoma Ave., Lake Ronkonkoma, NY 11779; (510) 588-6994



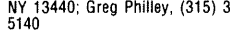
Foothills R/C Racing Club, RD 1, Box 1156, Maryland, NY 12116; Steve Valentine, (607) 433-1860 or 432-7508



Gamlen's R/C Motor Speedway, 8453 Rt. 11, P.O. Box 1430, Cicero, NY 13039; Mike Woods, (315) 699-2991



GP Racing, 6785 Martin St., Rome, NY 13440; Greg Phillely, (315) 336-5140



HobbyTown USA, 629 Plank Rd., Clifton Park, NY 12065; Larry Burwell, (518) 383-1215



Lakeside Raceway & Hobbies, 712 Willow Ave., Ithaca, NY 14850; (607) 272-0248



Latest Hobbies & Raceway, 781 Rt. 25A, Rocky Point, NY 11778; Joe Jolin, (516) 929-8844, fax, (516) 929-5002



Li 1/4-Scale Racers, 63 Horton Dr., Huntington Station, NY 11746; (516) 351-5384



Maspath Raceway, Rust St. & 57 Rd., Maspath, NY 11378; Walter, (718) 897-7921



Mattituck Hobbies & R/C Raceway, 7335 Main Rd., Mattituck, NY 11952; Wally, (516) 298-2020



Norwood Hobbies Raceway, 2-4 S. Main St., Norwood, NY 13668; Tom Jarvis, (315) 353-6621



Performance Hobbies Raceway, 205 North Ave., Webster, NY 14580; Anthony Cenzi, (716) 621-1274



Performance Plus R/C Speedway, The Hobby House, 1141/2 Jones & Gifford Ave., Jamestown, NY 14701; (716) 488-1772



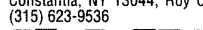
Queens Off-Roaders, 42-12 13th St., Long Island City, NY 11101; (718) 392-5766



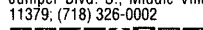
R/C Competition Corner, K-Mart Plaza, Mattdale, NY 13211; (315) 455-8718



R/C Hobbies, Rt. 49, Box 138, Constantia, NY 13044; Roy Catholdi, (315) 623-9536



R/C World Hobby Center, 69-57 Juniper Blvd. S., Middle Village, NY 11379; (718) 326-0002



R&S Hobbies, 356 Macedon Ct. Rd., Fairport, NY 14502; (716) 425-3722



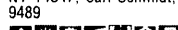
Race O Rama, 44 Sharon Ave., Plattsburgh, NY 12901; James Varno, (518) 562-5442 or 643-2678



Ransomville R/C Raceway, 2576 Academy St., Ransomville, NY 14131; Irene Preisch, (716) 791-8310



Rock River Model Hobbies, RD 2, Box 297, Rock River Rd., Interlaken, NY 14847; Carl Schmidt, (607) 532-9489



Schoharie Co. R/C Car Club, P.O. Box 126, Cobleskill, NY 12043; (518) 234-4600



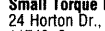
Seneca R/C, 2339 Yerkes Rd., Romulus, NY 14541; (315) 789-8343



Skaneateles Raceway & Hobby, P.O. Box 102, Rt. 20, W. Genesee St., Skaneateles, NY 13152; (315) 685-8077



Small Torque Racers of Long Island, 24 Horton Dr., Huntington Station, NY 11746; George Franz, (516) 271-1119



South Shore Hobby & Raceway, 311 W. Roe Blvd., Patchogue, NY 11772; Don Hauck, (516) 758-5567



Southern Tier Raceway & Hobbies, 88 Paige St., Owego, NY 13827; Chet or Anita Harding, (607) 687-5395



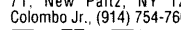
Team Earthquake, The Hobby House, 1141/2 Gones & Gifford, Jamestown, NY 14701; (716) 488-1772



Transit Speedway & Hobbies, 5319 Transit Rd., Depew, NY 14043; (716) 684-7368



Ulster County Speedway, P.O. Box 71, New Paltz, NY 12561; Joe Colombo Jr., (914) 754-7664



Wall's Hobby, 2 Dwight Park Dr., Syracuse, NY 13209; (315) 453-2291



Western New York R/C Speedway, 58 Spring St., Cuba, NY 14727; Jason Gongdon, (716) 968-3586



Whitestone Off-Road Raceway, 149-50 15th Rd., Whitestone, NY 11357; Whitestone Hobbies, (718) 767-6767



NORTH CAROLINA

B-n-B R/C Raceway, 7805 S. Airazona Dr., Raleigh, NC 27604; Craig Barber, (919) 878-8407



Badin Shore Raceway, 1730 Jackson Lake Rd., High Point, NC 27263; Jimmy or Tim Martin, (919) 431-9258



Big Kids Little Toys, 407-B Pomona Dr., Greensboro, NC 27407; Joe Stewart, (919) 299-3355



C&H Raceway, 1400 N. Cannon Blvd., Kannapolis, NC 28083; Camera & Hobby Shop, (704) 933-5321



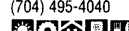
Cape Fear Speedway, 207 Harley Rd., Wilmington, NC 28401; Bob Justice, (919) 762-1184



Carolina R/C Drag Assoc., 907-C Warsaw Rd., Clinton, NC 28328; (919) 592-9489



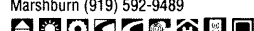
Carolina Hobbies R/C Raceway, Route 1, Box 158, Taylorsville, NC 28681; Kim & Roseanne Kulawik, (704) 495-4040



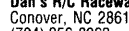
Clapp's R/C Motor Speedway, Rt. 4, Box 300A, Siler City, NC 27344; Al Clapp, (919) 663-3198



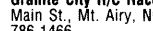
Clinton R/C Raceway, 907-C Warsaw Rd., Clinton, NC 28328; Corbitt Marshburn (919) 592-9489



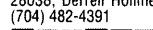
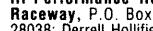
Dan's R/C Raceway, Rt. 4, Box 392A, Conover, NC 28613; Danny Dellinger, (704) 256-8963



Granite City R/C Raceway, 192-1 N. Main St., Mt. Airy, NC 27030; (919) 786-1466



Hi-Performance Hobbies & R/C Raceway, P.O. Box 320, Earl, NC 28038; Derrell Hollifield, Steve Bliss, (704) 482-4391



Hobbies, Etc., 5540 Atlantic Springs, Raleigh, NC 27604; Don Asplen, (919) 790-1444



Hobby Park, W. Clemmonsville Rd., Winston-Salem, NC 27103; Dick Butler, Parks & Recreation, (919) 727-2063



The Hobby Speedway, Hwy. 25, P.O. Box 279, Naples, NC 28760; Jerry or Kelda Bowers, (704) 684-9814



Joe's Hobby Shop & Raceway, Rt. 2, Box 682-B, Bessemer City, NC 28016; (704) 435-2912



Jacksonville International Raceway, E. Thompson St., Jacksonville, NC 28540; Penny, (919) 346-1522



K/C Hobby Raceway, 10517-N N. Main St., Archdale, NC 27263; Kirby Cranford, (919) 434-3482



Lucky 7 Hobbies, 1757 Hwy. 15, Creedmoor, NC 27522; Eddie Markham, (919) 528-2054



Mega Track of the Triad, 5540-105 Atlantic Springs Rd., Raleigh, NC 27604; Don Asplen, (919) 790-1444



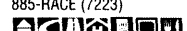
Motorlead R/C Raceway, 125 Park St., Canton, NC 28716; (704) 648-7911



Mountain R/C Raceway, Hwy. 107N, P.O. Box 67, Glenville, NC 28736; (704) 743-3709



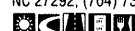
Outlaws Fastrac Hobbies Raceway, 1013 Old Hendersonville Hwy., Brevard, NC 28712; Jeff Laws, (704) 885-RACE (7223)



PC Hobbies, 143 Industrial Dr., King, NC 27021; Mike Ingles, (919) 983-2514



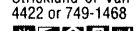
Reedy Creek Raceway, Rt. 14, Box 946, Conard Sowers Rd., Lexington, NC 27292; (704) 731-4022



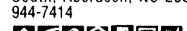
Rosewood Speedway, Rt. 5, Box 853, Goldsboro, NC 27530; Glenn Elam, (919) 731-4734



S&B Speedway & Hobbies, Rt. 1, Box 311A, Farmville, NC 27828; Ricky Strickland or Van Bibbs, (919) 753-4422 or 749-1468



Sandhills Raceway Inc., US #1 South, Aberdeen, NC 28315; (919) 944-7414



Smiley Face Raceway, 120 W. Center St., Mebane, NC 27302; (919) 563-3822



Speed Performance, 4121 Lower Moncur Rd., Sanford, NC 27330; Howard Everett, (919) 774-3843

Wilkes Hobby Thundervally Raceway, Rt. 1 Box 350-B, Wilkesboro, NC 28624; (919) 973-5734



Winston R/C Drag Series/Hobby Park Dragway, W. Clemons Rd., Winston-Salem, NC; Jack Wright, (919) 983-9416



NORTH DAKOTA

Crystal Springs Off-Road, 1200 53 Ave. SW, Minot, ND 58701; (701) 852-9590



Hacienda Hills Speedway, 20 Hacienda Hills, Minot, ND 58701; Kenny Duchscherer, (701) 839-4419



Northern Mini Racers, P.O. Box 415, Minot, ND 58702; Patrick McWethy, (701) 839-8868



OHIO

AAAction Speedway, P.O. Box 6, Morral, OH 43337; Tim McKnight, (614) 465-9891 or Bill Harris, (614) 387-5912



A&D R/C Raceway, 5096 Rt. 127 S., Eaton, OH 45320; Aaron Garrett, (513) 452-1662



Aerotech Raceway, 409 Applegrove Rd., North Canton, OH 44720; (216) 499-1300



Alcraft's R/C Raceway, 1370 Custer-Orangeville Rd., Brookfield, OH 44003; (216) 448-1573



Alternative Racing Association, Canton R/C Speedway, 2600 17th St., East Canton, OH 44730; Neal Everhart, (216) 484-2587



Bryan Thunderdrome, Townline Rd., Bryan, OH 43506; Jeff Lehmann, (419) 636-9100



Buckeye Pulling Tracks, State Rt. 68, Xenia, OH 45385; Mark Hartings, (513) 376-8334



C/R Hobbies Top Race Track, 323 Center St., Ashland, OH 44004; Virginia Gagat, (216) 992-3833



Classic Hobbies & Raceway, 2845 W. Waterloo Rd., Akron, OH 44312; (216) 628-3222



D&J R/C Raceway, 801 W. Market St., Orrville, OH 44667; Don Yoder or Mark Nussbaum, (216) 682-4266



D&S Hobbies Raceway, 7701 Crile Rd., Concord, OH 44077; (216) 354-2112



FFA Speedway, 1001 Old Columbus Rd., Wooster, OH 44676; Roger Franks, (216) 264-1848



Flag City Raceway, 721 Rockwell Ave. (track address: 3772 C.R. 18), Findlay, OH 45840; Ruth Hubbard, (419) 422-5589



Golden Bear Hobbies, 154 N. Millbourne Rd., Orrville, OH 44667; Bob Rodi, (216) 683-1250



Hi Tech Hobbies II, 116 S. Taylor St., Loveland, OH 45140; Rick Lewis or Richard Kosar, (513) 683-8900



Hobby Mania Raceway, 6597 Route 224, Lowellville, OH 44436; (216) 536-8282



Innovative Hobbies/Lakeside Speedway, 3427 Manchester Rd., Akron, OH 44319; (216) 645-1333



JB Hobby & Raceway, 8760 St. Rt. 201, Tipp City, OH 45371; Bob Curtis, (513) 845-8222



KAR R/C Raceway, 14511 Seacrist, Salem, OH 44460; Reid Tarves, (216) 537-4039



Lewisburg R/C Raceway, 395 US Rt. 40E, Lewisburg, OH 45338; Gene Butler, (513) 678-9201



Medina City R/C Raceway, 3414 Remsen Rd., Medina, OH 44256; Eric Pesto, (216) 723-0255



Midway Racetrack, 2601 Ashland Rd., Mansfield, OH 44905; Greg Jones, (419) 589-4200



Parma Speedway, 5729 Ridge Rd., Parma, OH 44129; Sam Belsito, (216) 845-3706



Paulding R/C Speedway, 103 N. Main, Paulding, OH 45879; Virgil Simindinger, (419) 238-0633



The Racer's Choice R/C Hobbies & Raceway, 1298 US Rt. 42, Mason, OH 45040; (513) 398-5539



RBI R/C Speedway, 110 Springdale Ave., Winterville, OH 43952; Frank Luckino, (614) 264-9101



Right Choice Hobbies, 7760 Garrison Ave., Cincinnati, OH 45247; (513) 353-3343



Rolling Thunder, 1945 North Hubbard Rd., North Madison, OH 44057; John Hoylman, (216) 428-4406



Sleepy Hollow Raceway Park, 11189 Spear Rd., Concord, OH 44077; Gary Waldheim, (216) 944-5898



Steel Valley Hobbies & Raceway, 157 North Fourth St., Steubenville, OH 43952; Jim Maxwell, (614) 282-3003



Strongsville Speedway, 13315 Prospect, Strongsville, OH 44136; (216) 572-0430



Trusso's R/C Raceway, 100 W. Crain Ave., Kent, OH 44240; Bill, (216) 673-0422



Way Out Hobbies, 5583 Centerpoint Rd., Georgetown, OH 45121; (513) 375-4984



Woodlane Raceway, 2300 E. Dorothy Lane, Dayton, OH 45420; Jeff Simpson, (513) 298-1166



Y-City Hobby & Speedway, 120 S. 6th St., Zanesville, OH 43701; Kevin McKenna, (614) 455-3025



OKLAHOMA

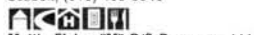
Ace Raceway, 2608-76B Villa Prom. (Shepherd Mall), Oklahoma City, OK 73107; Mike McLish, (405) 947-5937



Adams Creek R/C Speedway, 5207 S. 194th E. Ave., Broken Arrow, OK 74014; John Beighle, (918) 355-1416



Coweta Hobby & Speedway, 310 S. Broadway, Coweta, OK 74429; Derald Seabolt, (918) 486-3948



Matt's Flying "M" R/C Raceway, 111 W. 4th, Shamrock, OK 74068; Matt Sontag, (918) 352-3212



Off-Road Car Assoc. of Tulsa, 9720 Swan Dr., Broken Arrow, OK 74014; George Gooch, (918) 486-4528



RCRC, 400 S. Vermont, Suite 104, Oklahoma City, OK 73108; Rick or Steve, (405) 947-7223



Sundown Raceway, 526 Virginia Ave., Ponca City, OK 74601; Ryan Trant, (405) 765-2832



Wild Country Speedway, 127 South Main, Porter, OK, 74454; Charles McCollough, (918) 685-0372 or 687-1686



OREGON

Catch Some Air, 44855 SE Wildcat Mountain Dr., Sandy, OR 97055; Erik, (503) 668-8334



Cathie's R.C. World, 443 So Calapooia, Sutherlin, OR 97479; Wes/Cathie Buzzard, (503) 459-2746



Competition Racing Assoc., 17941 NE Glisan, Portland, OR 97230; Mark Taylor, (503) 257-0796



Fast Track Recreations, 18023 SE Addie Rd., Milwaukie, OR 97267; Dale Nielson, (503) 659-7661



The Finish Line R/C Raceway, 560 W. 'D' St., Apt. 6, Creswell, OR 97426; Rod Carothers, (503) 895-4395



Hobby Center, 1740 Geary St. SE, Albany, OR 97321; Ron Juhnke, (503) 928-5255



Mt. Bachelor Radio Raceways, 225 Century Dr., Bend, OR 97701; Rex Baldwin, (503) 389-6160



North Lawrence Raceway, 36 N. Lawrence, Eugene, OR 97401; Gary Hill, (503) 484-9857



R/C Plus Hobbies Raceway, 2029 25th St. SE, Salem, OR 97302-1130; Ron Smith, (503) 364-9188



R/C Speed Center, 2810 N. Pacific Hwy., Medford, OR 97501; (503) 779-8298



Yamhill County R/C Car Club, 722 Morgan Ln., McMinnville, OR 97128; Larry Rucker, (503) 472-7234



PENNSYLVANIA

A-1 R/C Speedway, 15 S. Hanover St., Hummelstown, PA 17036; Clyde Felker, (717) 566-3335



Ansolan, 54 High St., Fairchance, PA 15436; Timothy Abraham, (412) 564-9956



B&B Raceway, 252 Geiger Rd., Philadelphia, PA 19115; Rod Smith, Doug or Dave Bruestle, (215) 686-6086



BJ's Hobbies & Raceway, 570 E. Camping Area Rd., Wellsboro, PA 17365; Janet & Allen Wiley, (717) 292-3723; fax, (717) 292-3584



Brian's Raceway, 733 Flexer Ave., Allentown, PA 18103; (215) 435-1862



CEB Motors R/C Div., 5743 Molly Pitcher Hwy., Marion, PA 17235; Charlie Booze, (717) 375-4635



Clearfield R/C Car Club, P.O. Box 297, Clark Hill Rd., Hyde, PA 16843; Joe Welch, (814) 765-3045



Cressona Mall Speedway, Rt. 61, Pottsville, PA 17901; (717) 385-3506



Curly's Hobby Shop, 4455 W. Ridge Rd., Hickory Plaza, Erie, PA 16506; (814) 835-1134



DARCAR, Rt. 1, Box 290, DuBois, PA 15801; (814) 375-0687



DC Ultra Oval, 13 York Rd., Warminster, PA 18974; (215) 672-5200



Denwick R/C Hobbies & Raceway, 5601 Lincoln Way East, Fayetteville, PA 17222; Charles Gardenhour, (717) 352-8899



Dreamboat Hobbies, 2810 Pennsylvania Ave. W., Warren, PA 16365; Louie Dussia, (814) 723-8052



East St. Raceway & Art Center, 747 E. Railroad Ave., Verona, PA 15147; (412) 826-0602



East St. Raceway, 736 East Railroad Ave., Pittsburgh, PA 15147; Steve Maiolo, (412) 826-1324, (412) 826-0602



Henning Scale Models R/C Raceway, 128 S. Line St., Lansdale, PA 19446; Bill Henning, (215) 362-2442



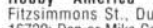
High Tek Hobbies, 13250 Rt. 30, N. Huntingdon, PA 15642; Ken Brooks, (412) 864-5278



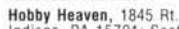
Hipkins Hobbies Raceway, 402 W. Avondale-New London, West Grove, PA 19390; Doug Hipkins, (215) 869-8585



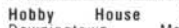
Hobby America Raceway, 5 Fitzsimmons St., Duke Center, PA 16729; Dan or Mike Coast, (814) 966-3765



Hobby Heaven, 1845 Rt. 422 West, Indiana, PA 15701; Scott McAdoo, (412) 463-8010



Hobby House Raceway, Downingtown Marketplace, Downingtown, PA 19335; J.T. Nelson, (215) 269-1300



Hobby World Raceway, 172 Shillington Rd., Sinking Spring, PA 19608; Mike Wentzel, (215) 678-8760



JR Hobby Shop & Raceway, 1806 Nagle Rd., Erie, PA 16501; Ron Bradar, (814) 898-1816



Koonitz's Home & Hobby Center, 1205 Hoover St., Pittsburgh, PA 15204; (412) 331-3866



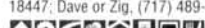
Kranzel's R/C Raceway & Hobbies, 415-B Bosler Ave., Lemoyne, PA 17043; David or Stuart Kranzel, (717) 737-7223



L&R R/C Racing, 15 S. Main St., Red Lion, PA 17356; Larry & Randy Shoemaker, (717) 244-1108



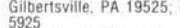
Main Hobby Race Center, 501 E. Lackawanna Ave., Olyphant, PA 18447; Dave or Zig, (717) 489-4566



Marshall's R/C Raceway, RR 4, Box 640, Honesdale, PA 18431; Bill or Dot Marshall, (717) 729-7458



Modellbahn Ott Hobbies, 1145 E. Philadelphia Ave. (Rt. 73), Gilbertsville, PA 19525; (215) 367-5925



Mountain R/C Raceway, 918 S. Park Ave., Somerset, PA 15501; Bob Rhodes, (814) 445-4085



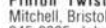
Mt. Laurel Speedway, 835-8 Hiester Lane, Reading, PA 19605; Joe Vaccaro, (215) 921-0176



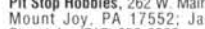
New Garden Farms/Mushroom Bowl, 812 W. Cypress St., Kennett Square, PA 19348; Drew Pannell, (215) 444-1850



Pinion Twisters, Green Lane & Mitchell, Bristol, PA 19007; Bob, (215) 945-0325, John, (215) 632-9744



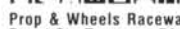
Pit Stop Hobbies, 262 W. Main St., Mount Joy, PA 17552; James F. Stovot Jr., (717) 653-6222



Pro Challenge Raceways, Wycombe Ave. (P.O. Box 536), Lansdowne, PA 19050; Bob Baldwin or Bob Paulauge, (215) 622-7651



Prop & Wheels Raceway, 139 W. Broad St., Tamaqua, PA 18252; Gil Walters, Prop & Wheels Hobbies, (717) 668-2288



R&D Hobbies & Raceway,

Track Directory

Staub Bros. R/C Speedway, 31 Locust St., Gettysburg, PA 17325; Todd or Scott Staub, (717) 334-5445



T&T Radio Controlled Racing, Randolph Rd., Great Bend, PA 18821; Jack, (607) 773-8603



TC's R/C's, 1537 Freeport Rd., Natrona Heights, PA 15065; Tom Coriale, (412) 226-8802



Trains and Lanes, 3812 Newburg Rd., Easton, PA 18042; Jeff Setzer, (215) 253-8850



Wagonhill Hobbies, 967 New Castle Rd., Rt. 422, Butler, PA 16001; Jeff Hyatt, (412) 865-9877



PUERTO RICO

Cachon Off-Road Track, Box 952, Barranquitas, PR 00794; (809) 857-0341



Cidra R/C Track, Carr 7787 Km 1.6, BoBeatriz Adentro Cidra, PR; Humberto (Tito) Lizardi, (809) 739-1572



Cachon Off-Road Track, Box 952, Barranquitas, PR 00794; (809) 857-0341



RHODE ISLAND

East Bay Hobbies, 629 Metacomb Ave., Bristol, RI 02809; (401) 254-0778



R/C Hobbies, 47 Sandybottom Rd., Coventry, RI 02816; (401) 823-4335



Tri-State R/C Raceway, 205 Hallene Rd., Warwick, RI 02886; Raymond Dean, (401) 738-4908

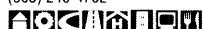


SOUTH CAROLINA

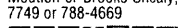
Bandit's Performance R/C Hobbies, 2037 S. Main St., Darlington, SC 29532; Bryan Howie Jr., (803) 393-3333



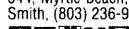
Berea R/C Speedway, 707 Sulphur Springs Rd., Greenville, SC 29611; (803) 246-4702



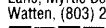
Capitol City Raceway, 1955 Legrand Rd., Columbia, SC 29223; Lee Moulton or Brooks Shealy, (803) 788-7749 or 788-4669



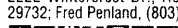
Coastal R/C Speedway, 8553 Hwy. 544, Myrtle Beach, SC 29577; Wendel Smith, (803) 236-9309



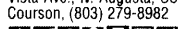
Inland R/C Speedway, 61 Newfound Lane, Myrtle Beach, SC 29577; James Watten, (803) 293-1753



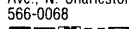
Mid-Carolina R/C Superspeedway, 2222 Wintercrest Dr., Rock Hill, SC 29732; Fred Penland, (803) 328-8278



Monaco's Raceway, 727 E. Buena Vista Ave., N. Augusta, SC 29841; Bill Courson, (803) 279-8982



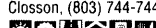
Palmetto Raceway, 5023A Rivers Ave., N. Charleston, SC 29418; (803) 566-0068



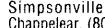
R/C Speed Shop & Raceway, 2122 Platt Springs Rd., W. Columbia, SC 29169; Eric Prevost, (803) 791-4715



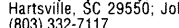
Sidewinder's R/C Raceway Park, 1601-B West Enterprise St., North Charleston, SC 29406; Jimmy Closson, (803) 744-7441



Simpsonville International R/C Speedway, 3009 Bethel Rd., Simpsonville, SC 29681; Larry Chappelear, (803) 297-3572



TBS Superspeedway, 800 Hwy. 15N, Hartsville, SC 29550; Johnny Tiller, (803) 332-7117



SOUTH DAKOTA

CSF Speedway, Central States Fairgrounds, Creative Arts Bldg., 800 San Francisco St., Rapid City, SD 57702; Scoop Laskowski, (605) 342-5292



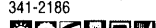
Dakota Off-Road Racers, 2989 W. Br. Co. 12, Aberdeen, SD 57401; (605) 226-0604



1/8-Scale Off-Road, 2989 W. Br. Co. 12, Aberdeen, SD 57401; Brian Bourdon, (605) 225-0803 (evening), 226-0604 (day)



Flags of Fun R/C Raceway, 2802 Eglin St., Rapid City, SD 57702; Rex Conrad or Scoop Caskowski, (605) 341-2186



TENNESSEE

Action Hobby Shop, 3723 S. Mendenhall, Memphis, TN 38115; Brian Stricklin or Justin Austein, (901) 365-2620



AIR Raceway, ByPass Hobbies, 1114 Hwy. 11 N., Athens, TN 37303; Bill Burris, (615) 744-8999



Butturini's Best Raceway, 4828 George Williams, Knoxville, TN 37922; Steve Butturini, (615) 531-0325



Crash-n-Burn R/C Raceway, 7030 Maynardville Pike, Knoxville, TN 37918; Gary Daniel, (615) 922-8722



Competition Park, Rt. 10, Box 268, Crossville, TN 38555; Terry or Yvette Bowen, (615) 277-5048



Cumberland Valley Raceway, P.O. Box 233, Ashland City, TN 30715; Jamie Pate, (615) 792-4371, ext. 1195



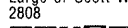
D&M's Downtown Raceway, 2703 US Hwy. 411S, Maryville, TN 37303; (615) 681-8919



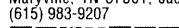
Estill Springs Raceway, P.O. Box 187, Hwy. 41-A, Estill Springs, TN 37330; David or Wendy Panter, (615) 649-5113



Hobby World Raceway, 185 S. Jefferson, Cookeville, TN 38501; Scott Large or Scott Watson, (615) 528-2808



Lail Speedway, 812 Wells Rd., Maryville, TN 37801; Jack or Chris, (615) 983-9207



Mad Dog Motorsports, 707 Joy St. (Rt. 3, Box 247), Paris, TN 38242; Dan Mobley or Mike Andres, (901) 642-7794 or 644-1523



MSA R/C Racing, Rt. 12 Box 489 B, Crossville, TN 38555; D.R. Findley, (615) 456-0027



Panther Traxx, 7030 Maynardville Hwy., Knoxville, TN 37918; Gary Daniel, (615) 922-8722



Raceplace, 215 Lynn Garden Dr., Kingsport, TN 37660; Randy Horton, (615) 378-3330



Rivergate Hobby Center, 700A Two Mile Pkwy., Goodlettsville, TN 37072; David Hitt, (615) 859-3455



RMD Raceway, 175 Seavers Rd., Jackson TN 38301; Travis Robertson, (901) 424-0283



Smitty's Hobbies & Raceway, 6021 Dayton Blvd., Chattanooga, TN 37415; David Smith, (615) 877-9447



TNT Pro Hobbies, 5529 Pleasant View #2, Memphis, TN 38134; Tony Howell, (901) 377-0013



Tuckasee Off-Road Raceway, 1004 Lafayette Rd., Clarksville, TN 37042; Denny Hayward, (615) 645-2635



TEXAS

AA Raceway, 1617 Toomey Rd., Austin, TX 78704; (512) 474-8277



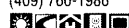
Anchored Acres Raceway, 1101 Sheppard Rd., Burkburnett, TX 76354; Bob & Patricia Veal, (817) 569-4707



Austin R/C Center, 9702 Gray Blvd., Austin, TX 78758; Caton Cobb, (512) 832-8144



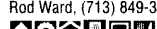
B&C Speedway, 201 Enterprise Row, #101, Conroe, TX 77301; Bobby Hillin, (409) 760-1986



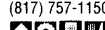
Budget Raceway, RR 1, Box 400 I-35, Bruceville, TX 76630; (814) 859-5296



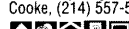
Checkered Raceway, 7121 Perimeter Park, Suite 214, Houston, TX 77099; Rod Ward, (713) 849-3054



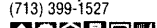
Dove R/C Speedway, 400 South I-35, Bruceville, TX 76663; Curtis A. Rowe, (817) 757-1150



Eagle Hobby Center, 3601 Shepherd, Balch Springs, TX 75180; Terry Cooke, (214) 557-5290



Eastex Raceway, 45000 Hwy. 59 N., New Caney, TX 77357; Heinz Falke, (713) 399-1527



Hal's R/C Raceway, 1440 Bessemer, El Paso, TX 79936; (915) 591-2213



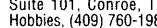
Heart o' Texas Hobbies & Raceway, 309 W. Hwy. 190, Copperas Cove, TX 76522; Larry Gholson, (817) 547-7505



Indy R/C World, 220 Mesquite Valley, Mesquite, TX 75150; (214) 686-7744



J&K Speedway, 201 Enterprise Row, Suite 101, Conroe, TX 77301; J&K Hobbies, (409) 760-1986



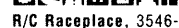
Outlaw Speedway, Rt. 5, Box 173-3R, Lubbock, TX 79407; Derrell Butcher, (806) 885-4406



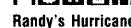
R/C Hobbies Raceway, 8500 Dyer, #36 Sunrise Centre, El Paso, TX 79904; Tim Minter, (915) 751-1864



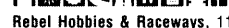
R/C Pro Shop, 12207 West County Road #129, Odessa, TX 79765



R/C Raceplace, 3546-A N. Main, Cleburne, TX 76031; Bruce Myers or Linda Achorn, (817) 558-2422



Randy's Hurricane Speedway, 9600-B Old Katy Rd., Houston, TX 77055; Randy Menchew, (713) 464-8020



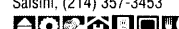
Rebel Hobbies & Raceways, 11925 Jones Maltsberger, San Antonio, TX 78216; George Norris, (210) 496-2396; fax, (210) 496-3294



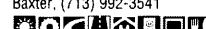
Rivercity Speedway, 11731 Wetmore, San Antonio, TX 78247; Ralph Hernandez, (210) 359-6870; Joe Toledo, (210) 341-5652



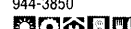
Ron's R/C Hobbies & Raceway, 2551 Lombardy, Dallas, TX 75220; Ron Salsini, (214) 357-3453



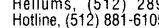
Southside R/C Raceway, 4409 FM2351, Friendswood, TX 77546; Roy Baxter, (713) 992-3541



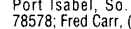
Spring Creek R/C, 45 Fisherman's Rd., San Angelo, TX 76904; (915) 944-3850



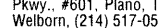
Star/Car Raceway, 5802 Patton St., Corpus Christi, TX 78415; Mike Hellums, (512) 289-0066; Race Hotline, (512) 881-6105.



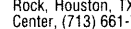
Star R/C Hobbies, 803 Garcia St., Port Isabel, So. Padre Island, TX 78578; Fred Carr, (512) 943-7546



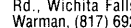
T&T Eagle, 161 W. Spring Creek Pkwy., #601, Plano, TX 75023; Tony Welborn, (214) 517-0562



Texas Speedway, 6707 Chimney Rock, Houston, TX 77029; I&I Hobby Center, (713) 661-7137



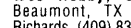
Texas State Raceway, 3703 Seymour Rd., Wichita Falls, TX 76309; Chip Warman, (817) 692-2065



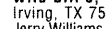
TK's R/C Park, 2921 Old Claude Hwy., Amarillo, TX 79101; (806) 622-0017



Wes Hobby, 980 S. 4th St., Beaumont, TX 77701; Edmond Richards, (409) 839-4929



Wild Bill's, 535 E. Shady Grove, Irving, TX 75060; Lynn Morgan or Jerry Williams, (214) 438-9224

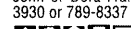


UTAH

Hansen Intermountain R/C Raceway, 8481 W. 2700 S., Magna, UT 84044; Kevin Hansen, (801) 250-8303



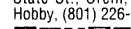
JD's Intermountain R/C Raceway, 1500 E. 1748 S., Vernal, UT 84078; John or Dora Frankovich, (801) 789-3930 or 789-8337



Power Hobbies & Raceway, 135 No. 900 East Suite 7, St. George, UT 84770; April Nutley, (801) 628-8747



Vision Hobby Raceway, 3528 N. State St., Orem, UT 84057; Vision Hobby, (801) 226-6226

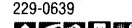


WOR (Wasatch Off-Road Raceway), 3170 Brinker Ave., Ogden, UT 84401; Ultimate Hobbies, (801) 733-0933

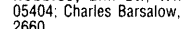


VERMONT

Barre Town R/C Club, Wall St. Complex, S. Main St., Rt. 14, Barre, VT 05641; Daniel Guyette Sr., (802) 229-0639



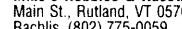
Green Mountain Superspeedway & Hobbies, Elm St., Winooski, VT 05404; Charles Barsalow, (802) 893-2660



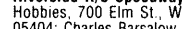
Hard Rock Raceway, Astrachan Dr., Bennington, VT 05201; Darren Ricchi, (802) 447-2656



Mike's Hobbies & Raceway, 162 N. Main St., Rutland, VT 05701; Stephen Rachlis, (802) 775-0059

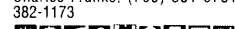


Riverside R/C Speedway, Boyz R/C Hobbies, 700 Elm St., Winooski, VT 05404; Charles Barsalow, (802) 893-2660 or 893-2332

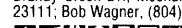


VIRGINIA

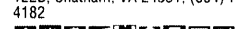
A-1 Raceways, 940 Radford Rd., Christiansburg, VA 24073; Kay or Charles Franks, (705) 381-9731 or 382-1173



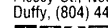
Bob's Hobbies & Raceway, 910-J Brandy Creek Rd., Mechanicsville, VA 23111; Bob Wagner, (804) 746-2758



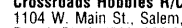
Cooper's R/C Raceway, Rt. 4, Box 122B, Chatham, VA 24531; (804) 724-4182



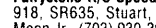
Craftech Challenge, Naval Base D-4, Piesey St., Norfolk, VA 23455; Bernie Duffy, (804) 444-3846



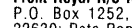
Crossroads Hobbies R/C Raceway, 1104 W. Main St., Salem, VA 24153; Ronnie Black, (703) 387-3414



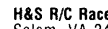
Fairstone R/C Speedway, Rt. 4, Box 918, SR635, Stuart, VA 24171; Pat Moon Jr., (703) 930-3984



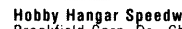
Front Royal R/C Racing Association, P.O. Box 1252, Front Royal, VA 22630; Pete Pomeroy, (703) 636-6149



H&S R/C Raceway, 565 Electric Rd., Salem, VA 24153; Henry Dowd or Stacy LaPrade, (703) 343-4012



Hobby Hangar Speedway, 4433A Brookfield Corp. Dr., Chantilly, VA 22021; Kwang Ko, (703) 631-8820



Hobby Shack and Track, Route 2, Box 184, St. Stephens C.H. VA 23148; John or Laura Holder, (804) 769-1311



SHAMROC, P.O. Box 3739; Winchester, VA 22604; Glenn Bland, (703) 888-3927



Sterling Truck & Auto Racers, 20921 Davenport Dr., Sterling, VA 22170; Ron Beckman, (703) 434-0333



The Tillyard, Rt. 1, Box 235A, Dayton, VA 22801; Homer W. Allman Jr., (703) 828-3476 or 828-6655



Trackside Hobbies, 1314 E. Pembroke Ave., Hampton, VA 23663; Rick Cardwell, (804) 723-4107



Trainland R/C Club, 5661 Shoulders Hill Rd., Suffolk, VA 23435; Frank Stevens, (804) 483-2331



Winners Circle, 3236 W. Clay St., Richmond, VA 23230; (804) 355-7076



WASHINGTON

Alfie's, 108 South K St., Aberdeen, WA 98520; (206) 533-6638



Arlington Heights Speedway, 13629 228th St. NE, Arlington, WA 98223; Shawn Bussert, (206) 435-3442



Firgrove TNT Raceway, 10611 136th E., Puyallup, WA 98374; Walt Hale, (206) 845-7675



Four Season R/C Racing, 2941 Sleater Kinney Rd. NE, Olympia, WA 98506; Gary & Sharon Brown, (206) 491-2430



Hank Perry Race Complex, Sullivan Rd., WA 99213; (509) 927-1879



L&L R/C Raceway, 15818 SE, 287th, Kent, WA 98042; Eric Lake or Bob Lewis, (206) 639-1241 or 631-1664



NDRA Performance R/C, P.O. Box 955 (1673 Cedarvale Rd.), Mt. Vernon, WA 98273; (206) 755-9464



Raceway Hobbies, 188 Sunset Ave. S., Edmonds, WA 98020; Dave or Ron Steen, (206) 774-3285



Schmidt's Auto Parts, 10305 Old Hwy. 99, Marysville, WA 98271; Jon Faila, (206) 653-8838



Spokane Indoor Raceway, E. 6422 2nd Ave., Spokane, WA 99212; Mike Gjendern, (509) 534-RACE



Tacoma R/C Raceway Hobbies, 6305 6th Ave., Tacoma, WA 98406; (206) 565-1935



Tearor Raceway, 8012 S. Tacoma Way, Tacoma, WA 98499; Dave Kleinman, (206) 584-8659



WEST VIRGINIA

Burr-Fab Raceway, 90 Davis St., West Union, WV 26456; Mark Travis, (304) 873-2487



D.W. Reed's, 142 West Main, Bridgeport, WV 26330; David Reed, (304) 642-2742



Fairmont R/C Raceway, 430 Fairmont Ave., Fairmont, WV 26554; Ed Kirby, (304) 363-5509



Fulton's R/C Raceway, 2646 Chapline St., Wheeling, WV 26003; James Fulton, (304) 233-5355



R/C Race Place, Rt. 10, Box 351, Morgantown, WV 26505; (304) 292-0811



R/C Speed, Rt. 1, Box 363, Roncverte, WV 24970; Joe, (304) 647-4162



WISCONSIN

ABC R/C, 1441 E. East Main St., Waukesha, WI 53186; Dick, (414) 542-1245



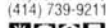
Antigo Hobby, 311 Superior St., Suite 7, Antigo, WI 54409; (715) 623-7655



Arena Park Raceway, Kenosha County Parks, 7727 60th Ave., Kenosha, WI 53142; David Delabio, (414) 657-6371



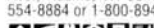
Fox Valley Off-Road Race Club, R1, Mayflower Rd., Hortonville, WI 54944; (414) 739-9211



Frog's R/C Raceway, Rt. 1, Phillips, WI 54555; (715) 339-2314 or 339-2958



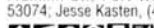
Gary's Hobby Center, 3701 Durand Ave., Racine, WI 53403; Ron, (414) 554-8884 or 1-800-894-6229



Grant County Speedway, 2125 Oak, Hazel Green, WI 53811; Brad Birkette, (608) 854-2246



Hobby Headquarters, 123 North Franklin St., Port Washington, WI 53074; Jesse Kasten, (414) 284-8850



Hobbytown Speedway, 4231 8th St. S., Wisconsin Rapids, WI 54494; (715) 421-1222



JJ's Dirt Heaven, 6028 County K, Champion, WI 54229; (414) 866-9096



Maniac Motors Raceway, 244 Rt. 1 A1 Rt. H, Kendall, WI 54638; (608) 462-8935



MARCCA Raceways, 1810 S. Park St., Madison, WI 53713; Jeff Gundlach, (608) 273-0519



Midwest Tri-Clone, 144 N. Main St., West Bend, WI 53095; (414) 334-0487



Mitch's Finish Line R/C Inc., 786 Morris Ave., Green Bay, WI 54304; (414) 497-5057



Muskyland R/C Raceway, Rt. 10, Box 269, Hayward, WI 54843; Jim Ahrens, (715) 634-2109



Pacific R/C Club, W7990 Hwy. P, Pardeeville, WI 53954; Rhys Brenner, (608) 742-7100



R/C Hobby Off-Road Track, Lewison Lane, Viroqua, WI 54665; Dan and Diane Sawvell, (608) 637-8221



R/C Raceway, 2239 Cty. Rd. E., Baldwin, WI 54002; Lance Van Damme, (715) 684-2690



R/C Raceways & Hobbies, 181 W. Marquette Ave., Oak Creek, WI 53154; Ralph & Cathy Augustino, (414) 764-9701



Radio Mania, 129 Harrison St., North Prairie, WI 53153; Bill Bowes, (414) 392-9515



Richland Center R/C Off-Road Race Club, Fairground Rd., Richland Center, WI 53581; Rick & Cheryl Stussy, (608) 647-7313



Sparta R/C Raceway, Golf Course Rd., Sparta, WI 54656; Eric Johnson, (608) 269-5861 or 269-6613



Stoltz Raceways, 548 Summit Dr., West Bend, WI 53095; (414) 338-6097



Trackside Raceway, 4405 W. Bradley, Milwaukee, WI 53223; Joel Gish, (414) 355-1910



West Bend Hobbies, 144 N. Main St., West Bend, WI 53040; (414) 334-0487



WYOMING

Collectable Creations Off-Road Oval Track, 1790 Dell Range Blvd., Cheyenne, WY 82009; Phil Severson, (307) 632-2156



AUSTRALIA

Wodonga R/C Car Club, 11 Murphy St., Wodonga, VIC 3690; Ron Langman, 011-6160-247-128



Aubry R/C Car Club, Aubry Showgrounds, Aubry, NSW 2640; Ron Langman, 060-247-128



BELGIUM

Cartroubles Indoor Buggy Track, Jan Moonsstraat 52-56, 2160 Wommelgem, Belgium; Guy Ermes, 32-3-326-51-15, fax, 32-3-326-51-01



BRAZIL

Hobby Center, SQS.210 Bl.H Apt. 204, Brasilia, DF-Brasil 70.273; 061-242-0488



Off Roaders, Av. Guillermo Dummont Villars, 317, Sao Paulo, CEP 05640; Waldir Ielpo, (055) 011-260-5628; fax (055) 011-831-4931



Way of R/C Off-Road Cerrado, Rua Fernandes Tourinho 999, 4th Floor, Belo Horizonte, MG; Claudio Teodoro Corrêa, (55) 31-223-3676



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Action Wheelz, 462 Turcotte, Vanier, Quebec, G1M 1R6; Regent Tardif, (418) 527-5756



Andy's R/C Raceway, Box 423, Lac La Biche, AB T0A 2C0; Andy Bryks, (403) 623-2951



Aprilia Track, 20 Parsons Ridge, Kanata, Ontario K2L 2N4; (613) 836-2577



ATN, 2000 Paul Hubert, Nicolet, Quebec J0G 1E0; Louis Durand, (819) 293-6097



Autodrome des Prairies, 935 Boul. St-Luc, St-Luc, Quebec J0J 2A0; (514) 348-0718



Cactus Speedway, Con. #3 Ruthven at Colastanti's, Ruthven, Ontario N8N 2W6; Lanny Fitzpatrick, (519) 735-3039; Wayne Telasco, (519) 966-0702



Circuit Pepsi, Centre de Location, 37 duRoi, Sorel, Quebec; (514) 746-8828



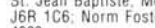
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Circuit St-Denis Auto Téléguides, 292 DuLion, St-Denis sur Richelieu, Quebec, J0H 1K0; Francois Rivard, (514) 787-1127



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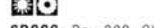
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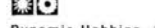
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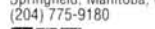
East Coast Model Center Raceway, 13 Glen Stewart Dr., Suite 1, Southport, Prince Edward Island, C1A 8X9; Gary Stephen, (902) 569-3262



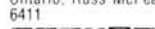
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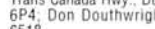
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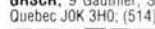
The Glass Castle Off-Road, RR#7 Trans Canada Hwy., Duncan, B.C. V9L 6P4; Don Douthwright, (604) 746-6518



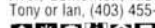
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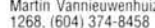
Honda House Motor Speedway, 384 Richmond St., Chatham, Ontario N7M 1P9; John Elliot, (519) 354-5530



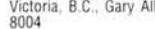
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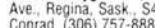
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Ivan's Playground, 2220 Dewdney Ave., Regina, Sask., S4R 1H3; Ivan or Conrad, (306) 757-8881



J-T International Raceway, 127 Milligan Lane, Napanee, Ontario K7R 8A1; N. O'Neill, (613) 354-0099



Kamloops Dirt Burners, 311-1780 Springview Pl., Kamloops, BC, V2E 1J4; Martin Vannieuwenhuizen, (604) 374-1268



Kiwanis Radio Control Club, 410 Spruce St., Timmins, Ontario P4N 4S7; Al Bouley, (705) 267-1569, fax, (705) 268-9129



Krazy Trak, 2412 Miller Ave., Saskatoon, Sask.; Brian & Bart Kendel, (306) 221-7344



M&M Hobbies Raceway, 430 McMurphy Ave. S., Unit 1604, Brampton, Ontario L6Y2N4; Mike, (416) 452-8355

Mackay Track, 1025 W. 14th, North Vancouver, BC; Alan Walrond, (604) 684-8335

Maple Grove R/C Track, RR #3, Brockville, Ontario K6V 5T3; Ray Giroux, (613) 342-5549

Meaford Georgian Bay Raceway, Hwy. 26, West of Meaford, Meaford, Ontario N0H 1Y0; Greg Allan or Dave Shaw, (519) 538-1441

MORRAC Raceway, 6449 Crowchild Tr. SW, Box 36060, Calgary, Alberta T3E 7C8; Gary Fliegel, (403) 254-1386

Niagra R/C Speedway, 1874 Hwy. 20, Thorold, Ontario; Steve Ingram, (416) 892-5548

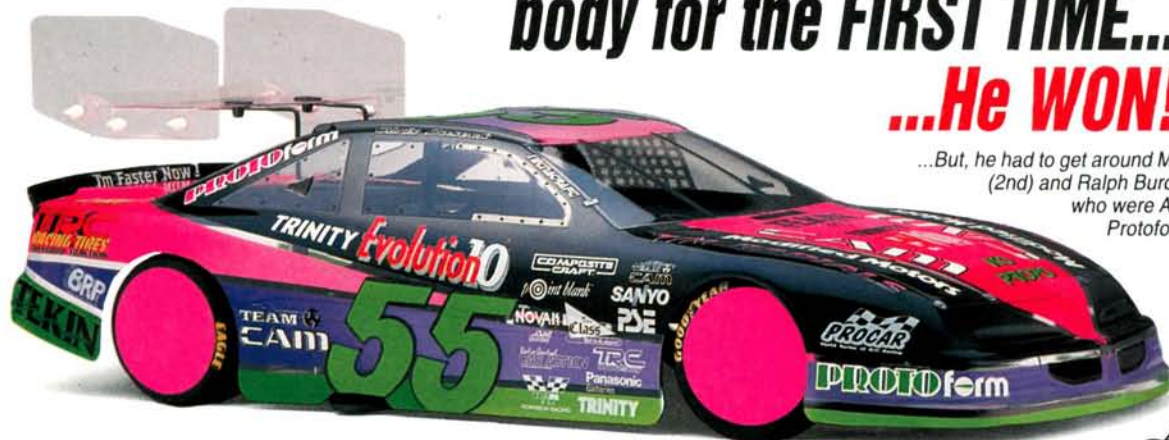
Northern Alberta Scale Car Auto Racers, 1142 Knottwood Rd. E., Edmonton, Alberta, T6K 2J8; Dean Simpson, (403) 461-3432

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Chris' winning car as shown with #1201-L Pontiac Body, #1710 Aero Fastners (on wing), and #1802 T Wheel Dots.

R/C DOCTOR

(Continued from page 62)

The price of a new, full Associated conversion is almost identical to that of replacing everything with new Tamiya or Kyosho parts. You could probably defray the cost of the Associated stuff by buying a used 10L and sharing the unused pieces with another racing buddy who needs a spare chassis, a rear pod, or a front end.

On the other hand, if you've had trouble getting parts for your F1 car, or if you've run it so much that your bearings and diff need replacing, or you're tired of waiting for that special order to arrive with your not-so-special part, you might want to give this conversion a try. Let me know what you think!

TIP OF THE MONTH

To use double-sided tape, first cut the piece you need off the roll. Put the sticky side

downward, and then heat the whole piece of servo tape with a hair dryer or a heat gun. Take off the protective paper or plastic film, and stick the part to it. You'll find that the tape is *much stickier*, and that it will come off as a whole piece when you eventually have to remove it! Try it; it really works! (A tip of the "Doctor's" surgical cap to Team Associated driver Billy Spence for this idea.)

*Here are the addresses of the companies mentioned in this article:

Kyosho; distributed by Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826; (217) 398-3630.

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656. TRC, P.O. Box 1058, Albemarle, NC 28002; (714) 362-2240.

Dan's R/C Stuff, 9525C Cozycroft Ave., Chatsworth, CA 91311.

Team Associated, 3585 Cadillac Ave., Costa Mesa, CA 92626; (714) 850-9337.

Kimbrough, 1420 East St. Andrews Place, Unit F, Santa Ana, CA 92705; (714) 557-4530.

BRP Inc., 1575 Lowell St., Elyria, OH 44035; (216) 284-0270.

Gator; distributed by Professional Racing Products, 709 Timberset Ct., Lutz, FL 33549.

Irrgang Racing Service, 411 Cannon Range Rd., Milmay, NJ 08340.

Jaco, distributed by Pro-Line USA, P.O. Box 456, Beaumont, CA 92223; (714) 849-9781.

C&M Cobra, P.O. Box 701-353, West Valley City, UT 84170.

Bolink, 420 Hosea Rd., Lawrenceville, GA 30245; (404) 963-0252.

INSANE CONVERSION

(Continued from page 101)

they're designed to handle the extreme rpm requirements of the Insane Speed Run. The tires are packaged individually, and they come in a variety of compounds and stagger. Following Gary's recommendation, I installed a pair of low-profile, standard-width, silver-compound tires in the front and narrow, gold-compound tires in the rear. (The rear tires are slightly softer than those in the front.) According to Gary,

(Continued on page 150)

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TIRE TALK

by FRANK MASI

Inside Pro-Line's Racing Tires

I'VE BEEN to enough off-road races to know that tires are probably as important to a driver's success as the car itself. Before you write to me to disagree, consider this: If tires weren't so critical, would top drivers, such as Brian Kinwald, make sure that they have a new set for each run when they're at a big race?

Pro-Line's tires have always been very popular with racers, but now, with the release of their mini-pin design and the formulation of their super-soft XTR rubber compound, they're really a force to be reckoned with. Here are some of the recent events that were won on Pro-Line's off-road tires: IFMAR '93 2WD and 4WD world championships, ROAR 2WD and 4WD off-road national championships and the ROAR Truck Nats.

I wanted to know more about these off-road tires: why do some tread patterns work while others don't? Why do softer tires seem to work much better on hard tracks? I went straight to the source—Tim Clark, Pro-Line's head tire engineer. Here's what I learned.



Understanding Rubber Compounds

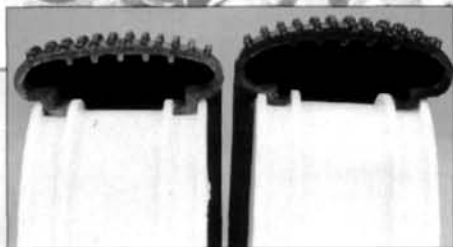
SOFT TIRES VS. HARD

We all needed tires that would work on very hard-packed, slippery tracks. Tires with larger spikes just didn't have enough bite, because their spikes folded over on the hard surface. Pro-Line's mini-pins worked much better, but because they were molded out of XT rubber (a medium-hard compound), they still relied on penetration rather than adhesion to grip the dirt.

Tim Clark wasn't happy with their performance. "I started thinking that a softer rubber compound would actually make the tire 'stick' to the dirt," he says. "The trick to making a tire bite on hard tracks was to design one that 'scraped' the dirt, rather than penetrated it." The result of

this thinking is a tire that combines the mini-pin tread with Pro-Line's new, super-soft XTR rubber—a tire that simultaneously scrapes and sticks to the track. To further increase traction, Tim developed a tire that has even smaller spikes that are set more closely together. When used on hard-packed tracks, these tires—Fuzzies—provide superb traction, especially when they're molded of XTR.

But softer isn't always better. Sometimes, even on hard tracks, it's better to use tires made of firmer rubber. According to Tim: "If you race on a hard-packed track, and the track crew waters it just before you run, you might want to use an XT tire instead of an XTR, because the softer tire won't grip wet dirt quite as well as the XT. When the track is dry, though, softer rubber is the only way to go."



BODY TALK

Tire bodies come in two varieties. If you look at a tire's cross-section, you'll see that it has a round body (shape) or a flat one.

Tim thinks that round-body tires work better on bumpy tracks. "They seem to go through the potholes and bumps better. They're less likely to 'snag' and make the car flip," he says.

Flat-body tires, such as the new Flat Stubbies and Flat Fuzzies, are better for smoother tracks. As Tim says, "They have much better side grip for better cornering, and they give much better forward acceleration."

NEW TIRE FOR NEW DIRT

Pro-Line's new Stubbies rear tires were developed specifically for the '93 World Championships track in England.

"At the Worlds, we tried both the Fuzzies and the Stubbies in XTR compound," says Tim. "England was a very fast track, and we found that the smaller pin spikes of the Fuzzies folded over during acceleration and through the turns; the track had so much bite!"

Tim found that the larger diameter spikes of the Stubbies were stronger than the spikes of the Fuzzies, so the Stubbies didn't slide as much through the turns. He adds:

"I felt that it was the XTR compound that was providing most of the traction in England, so it was just a matter of finding a tire design that would maximize the rubber's adhesive quality. The Stubbies worked best."

Apparently, Tim was right, because winners Brian Kinwald and Masami Hirotsuka both used Flat Stubbies on their cars to take home the gold.

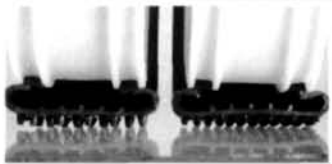


TREAD LIGHTLY

Certain tread designs seem to work much better when molded out of XTR. "Fuzzies and mini-pins work great with XTR.

Overall, tires with smaller spikes benefit most from softer rubber compounds," notes Tim.

When should you use the softer, XTR tires instead of using XT's? "XTR tires work well on any hard-packed track, and they'll work very well on any clay-type track—especially a track that develops a 'blue groove,'" says Tim. (A "blue groove" occurs when the dirt is hard and clean enough to allow the tire's rubber to become embedded in it.)



tires. "The rubber has a lower curing temperature, so you have to wait longer for the tires to cure. We've also had problems trying to bleed all the air out of the mold while we're trying to fill it with the rubber compound; if you don't get all of the air out, you'll get 'bubbly' tires. Though it's more expensive to make a set of XTR tires, Pro-Line is keeping their price the same as the XT's, and we include a set of foam inserts with the XTRs, at no additional cost."

FOAM SUPPORT

For an off-road tire to function properly, its shape must be maintained. The tire body should be able to support the tread or spikes, not become distorted and buckle under, because this allows the spikes to fold over and lose traction.

When tires are molded of soft rubber, such as XTR, they aren't able to adequately support their treads. To solve this problem, manufacturers could

mold reinforcements into the inside of the tires, but that would make them too heavy. Besides, softer tires seem to cope better with bumps because they easily become compressed and then rebound, and stiffening them would spoil this. Foam inserts are the best "fix."

Believe it or not, foam inserts aren't all alike; they come in a variety of hardnesses and thicknesses. According to Tim, changing the thickness or hardness achieves the same results.

"At the Worlds, Associated had three different hardnesses of foam inserts, while Masami had foam of three thicknesses. If a softer insert was needed, Associated would just use their softest, while Masami would use his thinnest insert," says Tim.

Pro-Line now offers foam inserts that are packaged with every pair of XTR tires. They're of a slightly larger diameter than you need, so you can trim them down to obtain the diameter and firmness you want.

There really aren't any tricks to using foam inserts, but when most factory drivers install them, they cut a "crown" around the foam—one that conforms to the shape of the tire body. This seems to give the tires more even support.

Also, when you install foam inserts, follow this simple procedure: cut the foam to the desired thickness and shape, and put it inside the tire. Carefully slide the tire/foam onto the rim. Then make at least two (and as many as four) small vent holes in the tire. Vent the tire before you glue it to the rim, because this will give the tire the most uniform shape.



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Believe it or not, harder tires don't always outlast softer ones. Although tire life depends largely on the type of track on which you run, some general rules apply.

Some tracks are really abrasive, so no matter which type of tire you use, they'll wear quickly. Even though XTR tires usually wear out faster than those molded of XT compound, worn XTR tires will still provide traction because they rely more on the adhesion of their rubber than the sharpness of their treads. Conversely, to gain traction, harder tires must penetrate the track's surface, so their spikes must always be sharp.

Don't throw out those worn, softer tires; on some tracks, they might still still be the hot setup!

A Tire's Life

GIMME FIVE

With regard to front tires, Tim says: "Tire compound is just as important as it is with rear tires. You want tires that really stick to the track, such as XTRs, but because front tires are often placed at extreme angles by the car's steering and suspension geometry, it's vital that their structure be rigid. "We've gone about as far with the standard, four-rib tire design as we can," Tim says. "The only way to get more traction is to widen the tire, but then you run into the rigidity and support problem." Tim's solution was to create a wider, five-rib tire with small "webs" that strengthen the outermost ribs and prevent them from folding under when the tire goes up on its edge. These new, Wide-5 tires are also more stable—especially when the track is really torn up and rutty.



STICK IT TO 'EM

What's the best way to glue a tire on its rim?

First, position the tire on the rim, making sure that it's uniform and that the tire bead fits in the rim properly. (If you use foam inserts, install them in the tire first.) Next, hold the tire on its side and put a thin bead of glue between the tire and the rim. (For best results, use a thin CA glue.) Finally, gently pull the tire away from the rim so that the glue drops between the two pieces. If you use light-color nylon wheels, you'll see a dark stripe where the glue makes good contact.



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INSANE CONVERSION

(Continued from page 118)

using narrow rear tires reduces the unsprung weight and lowers the rotational mass, and this, in turn, increases rpm.

OFF THE RECORD

Although I wasn't going for any kind of record—at least, not officially—I did want to test my project car where it was intended to run: I packed my gear and headed out to the Thunderdrome track. It wasn't officially open, but having this huge velodrome to myself is just one of the benefits of being a contributing author for *R/C Car Action*. I had raced here before, so I was familiar with the track, but this was the first time I had piloted a car with a nuclear powerplant.

I laid the car on the track and performed a few maneuvers to check the steering, the brake trim and the diff. It was all systems go, and without any hesitation, I gunned it. Blast off! The car took off like a low-trajectory missile. I didn't have a chance to blink because in less than two seconds, the car was already approaching turn 1 at about 70mph.

I laid off the throttle and coasted into the turn wide, then shot for the inside of the corner and gunned it; the BSR tires seemed hooked up, and I managed to keep the car

(Continued on page 152)

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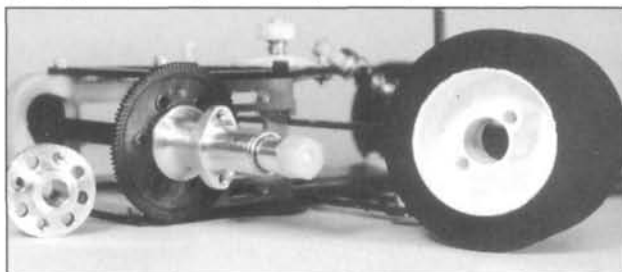
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INSANE CONVERSION

(Continued from page 150)

below the blue line. By the time the car exited turn 2 and hit the back stretch, it was up to full speed. There was no way to tell for sure, but I estimate that my project car was traveling at speeds of almost 100mph. I could actually see and feel the aerodynamic attributes of the narrow GTP body and wing; the car seemed to be planted in the ground and was tracking like an arrow.

Before I knew it, I was faced with turn 3, and this time, the car was carrying a lot more speed. I decided it was time to trust gravity, so I came in fast and furious. The car stayed planted a couple of feet above the blue line, and before I could retrieve my Adam's apple from my stomach, the car exited turn 4 and crossed the finish line.

AUTHOR'S NOTES

Although I didn't set any official records, I *did* break my personal speed record. I'll never forget those 10 seconds of insanity! Who knows? Maybe I'm just crazy enough to try it again; then again, I'd probably be pushing my luck. Maybe... [Editor's note: we're sorry to interrupt this project report, but it appears that George "Speedy" Gonzalez has forgotten to take his medication and has lost touch with reality. We are

(Continued on page 177)

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INSANE CONVERSION

(Continued from page 152)

certain that he will recover soon and come back to report on other "insane" projects.]

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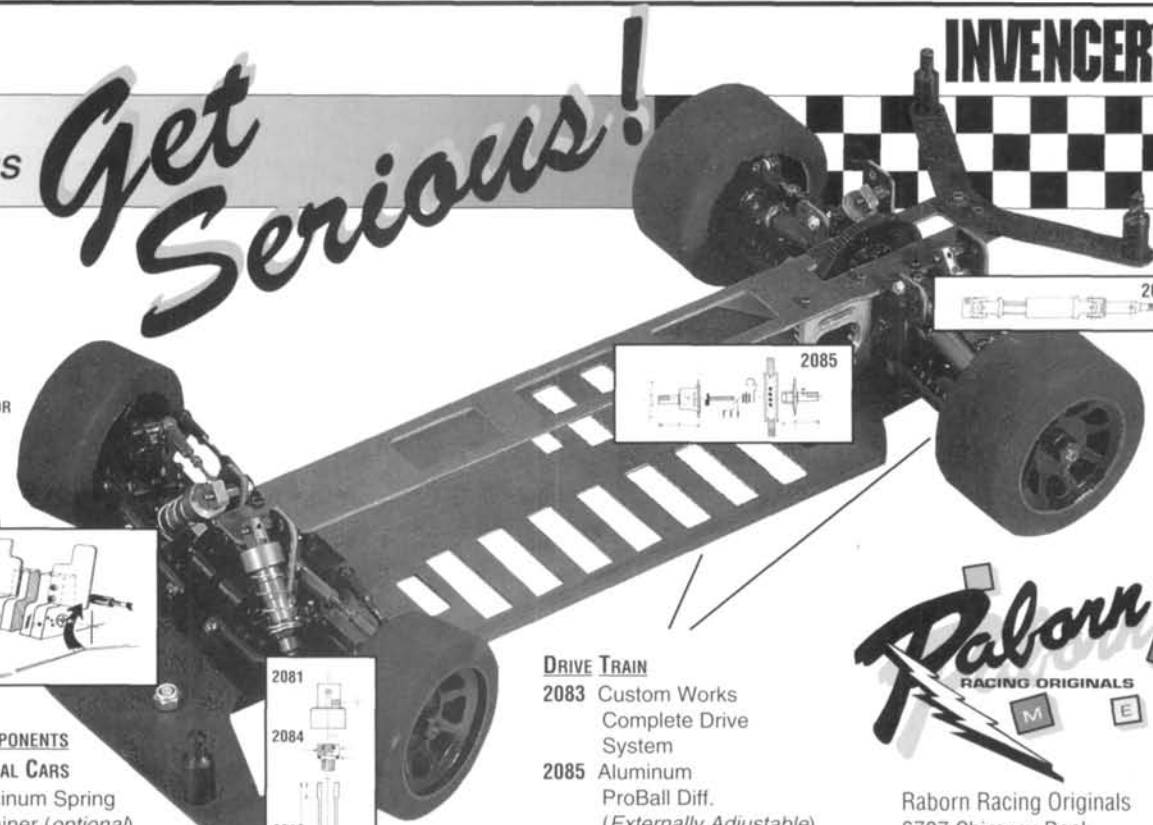
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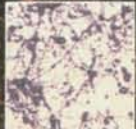
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